The Builder.

VOL. L. No. 2256. SATURDAY, MAY 1, 1886.

ILLUSTRATIONS.

The Northumberland Avenue Hotel.—Messrs. Isaacs & Florence, Architects 642-645
First Premiated Design for Fulham Vestry Hall: Front Elevation and Section.—Messrs. Newman & Newman, Architects 648
Detail of Front of Messrs. Newman & Newman's Design for Fulham Vestry Hall 649
First Selected Design for New Public Buildings, Newcastle-under-Lyme.—Messrs. Wm. Sugden & Son, Architects 652
Detail of Bay of Messrs. Newman & Newman's Design for Fulham Vestry Hall 653

CONTENTS.

Architecture at the Royal Academy 631
New Light on the East Pediment of the Zeus Temple at Olympia 632
Notes 633
Letter from Paris 635
Royal Institute of British Architects: Annual Report of the Council 635
Design for a Silk Brocade (Illustrated) 637
Architectural Association: Italy Excursion 637
Tendering at Swansea 638
Fulham Vestry-hall Competition Designs (with Plans) 639
First Selected Design for Public Buildings, Newcastle-under-Lyme 639
The Northumberland-Avenue Hotel 639
Deerhurst Church (Illustrated) 655
Dry-Rot 656
The Atmospheric Cowl Company's Exhaust Ventilator (Illustrated) 657
Water Supply 657
Stone for the New Government Offices 657
Staircase, Albany Capitol 657
Ancient Greek Sculptors 657
Stone-Sawing Machinery 657
Robinson's Cement 658
"Haskell v. Bradbeer" 658
The Student's Column: Our Building Stones.—VIII. 658
Recent Patents 658
Recent Sales of Property 659
Meetings 659
Plumbers' Company 659
The Resistance of Building Stones to Frost 659
Miscellanea 659
Prices Current of Building Materials 661

Architecture at the Royal Academy.

NOTES on the general contents of the Royal Academy exhibition of 1886 we defer till next week, only remarking here that, as far as paintings are concerned, we fear it will not be registered as a good year. There are two or three remarkable pictures, and a fair sprinkling of good ones, amid what seems to us so far to be a more than usual proportion of uninteresting and commonplace work. On the other hand, sculpture, in spite of the absence or very poor representation of some of the best names of the day, shows a good average, and includes some works of very high beauty, interest, and originality.

The standard of work in the Architectural Room seems more generally up to a good average than any other department of the exhibition. Of course, it must be borne in mind that the number of these works is comparatively small: 202 drawings are exhibited, the total of works in the whole exhibition being 1,925; and equally, of course, architectural drawings, which are only representations of the work and not the work itself, do not stand in the same category as paintings and sculpture, which are themselves the finished work. Nevertheless, the architectural visitor will, we think, find that there is a good standard maintained, and though there are few remarkable things, there are few which do not vindicate their right to be present. There is a considerable proportion of church architecture, and a rather larger amount than usual of decorative work, mostly of a good class. Public buildings of any scale or importance are, as usual, in the minority; domestic architecture is fairly represented.

As we have sometimes done on former occasions, we will look through the churches first. Church architecture stands on different ground in one respect from other branches of modern architecture, in that it is more distinctly influenced by precedent than any other class of buildings. The days have gone by when it was considered by clients sufficient to have what was called a comfortable house, and when it was even considered rather "bad form" to wish to have a dwelling distinguished by any special effort at artistic effect from those of your neighbours. There is now, on the contrary, rather a desire on the part of men who build for themselves and their families to have homes reflecting their own tastes, or, at all events, the taste of their architect; and the conditions of plan and arrangement are more elastic in the case of a dwelling-house than in any other kind of structure except those which are purely monumental or decorative in character and aim. In the case of the church, on the other hand, the Mediæval plan, subject to modification within rather narrow boundaries, is still *de rigueur*. Orientation, the position of the chancel, of the baptistery (where there is one), of the choir, are settled by prescriptive custom or tradition, and the possible variety of plan is therefore very small; and practically style is, to a certain extent, also prescribed, though the latitude here is much greater than in regard to plan. It is still tacitly regarded, however, as a principle, that a church, to be acceptable, must be Gothic; it may be Gothic "with a difference," but it must, as a rule, fall within that category, and almost every one of the churches in the present exhibition does so. The matter of interest, therefore, is to find churches, designed within the accepted lines and in regard to plan and style, which present, nevertheless, some degree of originality in their details or in the variations played on the prescribed theme; and of this there are some interesting examples in the present exhibition.

Taking them in the order of hanging, the first we come to is Mr. Needham Wilson's Soane Medallion prize design for "a town church" (1,560); an exterior perspective view finely drawn in pen and ink, but taken from a point of sight rather too near to give the idea of the whole grouping, and producing a rather confusedly heaped-up effect, which is, however, picturesque, and was perhaps intentionally aimed at. The church is a brick one treated in a very severe style, with plenty of solid mass of wall, and large in scale; it realises its intended character as a town church,—it would be rather difficult to define what special characteristics go to distinguish a town church from a country one, but they are felt intuitively by most people who have any perception at all on such a subject. The placing of the tower at the angle where two streets meet secures one of the points of effect of which church architecture in streets is susceptible. Below this (1,561) is Messrs. Goldie, Child, & Goldie's interior of the church for Spanish-place, which has been illustrated in our pages, and of which we spoke at length at the time of the competition for the building. It represents the frank adoption of the Mediæval model, in detail as well as in general arrangement, and is, as we have before said, a very successful example of that class of archæological architecture which may be called mere imitation, but which, at all events, it requires no little knowledge, natural taste, and experience to reproduce successfully. The same architects exhibit one of the exterior views of this church (1,696), a large pyramidal group, rising effectively above the houses surrounding it.

Mr. Seddon's competitive design for the memorial church at Paisley (1,567), we have also illustrated. It makes a very effective coloured drawing, and represents a spirited attempt to adapt Mediæval architecture to the special requirements of a Baptist church. It is a design practical for its purpose, as well as effective as a whole, but we cannot like some of the detail, which savours too much of "Dissenting Gothic" for our feelings, though, perhaps, thereby the more fitted for its object.

St. Paul's Church, Finchley (1,570), by Mr. John Ladds, shows no special originality, but has the merit of refinement and solidity at the same time: it shows a tower on the north side, nearly a solid mass of wall in the lower stages, with octagonal turrets and a short lucarned spire. There is no attempt at adapting Gothic, but there is a good feeling about the whole. Mr. Arthur E. Street's "Church of St. Paul, Worcester" (1,571), is an interior with a good deal of character. It is a very solidly-treated design with little ornament, of generally thirteenth-century character, but with a special type about it; the piers and arches, without caps or impost mouldings, are diversified with bands of red brick with black edging bands, alternating with a light-coloured stone; the roof is a plain solid-looking Mediæval roof, with heavy curved braces springing from timber corbels. The pulpit is too "stumpy" in appearance, and does not harmonise much with the rest of the design; but the whole is a good interior, and very monumental looking. "All Saints Church, Gosforth" (1,574), by Mr. R. J. Johnson, is a pen-drawn interior of a church in orthodox Late Gothic style, with nothing to find fault with or to comment on in particular. The "Church of St. Peter, Accrington" (1,577), by Mr. Henry Ross, is a plainly-treated edifice with a main roof running from end to end, the ridge only broken by a rather picturesque timber bell-cot and spirelet; there is a small transept much below the ridge of the main roof; plenty of solid wall, little ornament, square windows in aisles and pointed windows in clearstory. The employment of square-headed windows in church design, in conjunction with a style of Gothic not generally associated with that form of window-head, is one of the variations in which modern Gothic is indulging; with a low aisle it gives a greater proportion of light, and thus the great inspiring spirit of utilitarianism (for such it is, rightly regarded) is creeping into modern Gothic church architecture.

The "Interior of St. Bartholomew the Great,

Smithfield" (1,603), by Mr. Aston Webb, showing the proposed restoration of the east end, is one of the finest drawings in the room, and one of great interest, as showing the proposed treatment of the most interesting ancient church in London. We shall publish a reproduction of the drawing next week, together with some account of the church as it is and is proposed to be. We will only remark here that the architect has gone on the principle of restoring the Norman arcade on the ground story as a continuance of that part of the original design, and restoring the fourteenth-century story above, round the apse, so as again to make a continuous design; thus striking a balance between the claims of archæological truth and architectural effect; and we believe this is the best course that could have been adopted under the circumstances; but there will be an opportunity of going into the subject more in detail next week.

Of Mr. Doyle's "Design for St. Bartholomew's, Liverpool" (1,606), the tower is the best portion. It shows an octagon rising, unsymmetrically, off a square mass in the lower stage, the square portion reaching to the height of the body of the church; the octagon has an upper stage of long window-lights, and is crowned by a smaller octagon stage and conical roof, very plainly treated. The effect of this is picturesque and rather unusual; the remainder of the building is rather bare and devoid of character. The "Interior, looking east, of Audlem Church, Cheshire" (1,612), by Messrs. Lynam & Rickman, is apparently an old church "done up," probably re-seated, but there is no indication what is actually new in the work; it is a plain, very solid, interior, of rather late date, with octagonal piers, with plain bell capitals and no carving.

Mr. E. C. Lee's design for "Proposed New Church, Teddington" (1,605) is hung too high to be well seen; it is a stately-looking church, in a Late Decorated style, with window tracery of Perpendicular type; a battlemented tower, with large angle turrets, at the crossing; it may be taken as a good specimen of the orthodox Gothic church. The "Trinity Presbyterian Church, Wimbledon," by Messrs. Potts, Sulman, & Hennings (1,615), is a pretty structure, with some original points about it; low walls and high roofs, with a very small clearstory, a tower at the south-west angle, with an octagon spire rather playfully treated, and a simple but elegant *flèche* at the crossing; the details are Early Geometric Gothic in character. "Our Lady's Church, Wellingborough" (1,616), by Mr. S. J. Nicholl, is a pleasing example of a small town church, Late Gothic, with a tiled roof, a low transept not breaking the main lines of the nave, and a square low tower nearly detached from the church at the north-west angle, the tower kept very plain, except for an enriched story just below the battlemented parapet, and with a short spire over it. The shafts running past the centre of the tower windows and through the battlements, and ending in finials, are a little whimsical and out of keeping with the solidity of the general design. The "Woodberry Down Baptist Chapel" (1,627), by Messrs. Paull & Bonella, shows some originality of treatment; the large end window is flanked by bastion-like side masses projecting in semicircular form, which above the roof become complete octagonal turrets, but the small buttresses in three stages in this turret portion, radiating from the angles, produce rather confused lines, and seem out of scale with the rest, and do not sit very well on the sub-structure. If not already built, this portion is capable of improvement.

Mr. Leonard Stokes's drawing of a portion of his design submitted in competition for the Spanish-place Church is a very fine pen-drawing (1,635), showing the portion of the design with the semicircular vestibule, with a door and sculptured gablet at each extremity of the semicircle. The portion of the building rising above the porch is very severe and massive in style. We commented on it at the time of the exhibition of the competitive drawings; but the porch with its cinqfoil arcade hardly seems to belong to the rest of the building, and this, with the rather awkward manner in which the semicircular line of roof fits (or does not fit) into the angle of the main building, makes the porch look rather like an afterthought added by another hand. Otherwise, this is one of the best drawings in the room, showing a part of what as a whole was a very fine design.

Mr. Billing's "Proposed Memorial Church, Paisley" (1,638), an exterior perspective and, (like the last) a competition design, we cannot say very much for, save that it is large, elaborate, and ambitious, but incoherent, and not really effective, in spite of all its elaboration of detail. Messrs. Goldie, Child, & Goldie's "New Catholic Church, Mount Vernon, Liverpool" (1,644), is a simple Geometric Gothic church, with no tower, only a large octagonal turret at the south-west angle, and a porch the width of the nave, beneath the seven-light west window, which (the porch, namely) does not seem quite sufficiently connected with the rest of the design. The effect of the whole is quiet and picturesque.

Mr. J. D. Sedding's "New Church, Roche, Cornwall" (1,643), is shown in a bird's-eye view pen-drawing; it is apparently a church with all three aisles completely roofed with ridges, instead of the aisle roofs being treated as lean-to's; the design has a good deal of character of an unpretending kind, the porches are treated with variety and originality; the tower seems rather wanting in character. Mr. Sedding's other church, "New Church at Hayle" (1,709), is still more original, in fact defiantly so. The tower occurs in the middle of the north side of the church, a great square mass below, with an octagon lantern planted upon it; the square mass is cut into a deep square-headed recess on each of the visible faces, in the upper part of which recess windows lurk; the nave aisles are very low with broad single buttresses of one set-off, and in the centre of each wall-space between the buttresses is one very small window, square in two of the bays, circular in another, giving the idea that the aisle must be divided into cells internally. The clearstory windows, on the contrary, are long lancets piercing the wall midway between the buttresses, and with moulded reliving arches over them connecting the buttresses. Towards the east end the ground falls very much, and this portion has two full window tiers. The little windows dotted in to the nave aisle wall seem like a joke; but then it is a very amusing joke, and the whole design is exceedingly original and picturesque, and shows a determined effort not to continue in mere archæological leading-strings, even while working in a spirit akin to that of Mediæval architecture. Mr. Sedding's large and elaborate drawing for the restoration of the choir screen at Winchester we will speak of on another occasion.

NEW LIGHT ON THE EAST PEDIMENT OF THE ZEUS TEMPLE AT OLYMPIA.

THE Museum of Casts at South Kensington has made it possible to take an intelligent interest in the question of the restoration and interpretation of the Olympian marbles, without the,—once indispensable,—journey to Berlin or to Olympia. If our readers will take the trouble to visit the museum, and study the "reduced copy of the east pediment group of the Temple of Zeus at Olympia" (in the catalogue No. 76*a*) they will find themselves easily in a position to appreciate the brilliant theory of interpretation which Dr. Loeschke has just sent us from Dorpat. To readers of the *Builder* Dr. Loeschke's name is familiar; his new theory is stamped with just the old impress, the hall-mark of constructive genius which stimulates the imagination as much as it convinces the intellect.

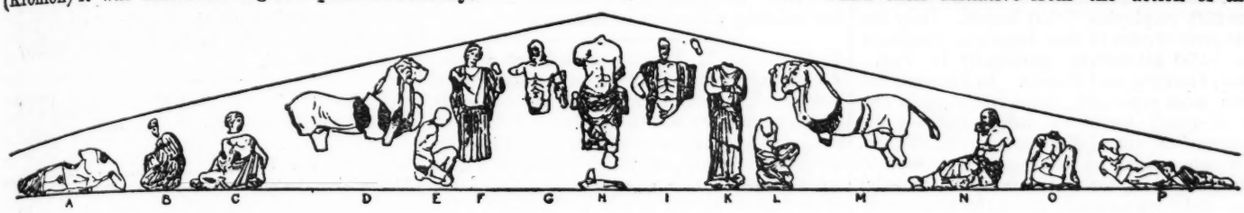
Mr. Perry, in his arrangement of the cast museum, has selected the restoration of the east pediment made by Treu. From this restoration we have always dissented, and we are glad to see that Dr. Loeschke's theory supports, though quite incidentally, the rival restoration of Dr. Curtius. Into the merits of the two restorations it is not our purpose here to enter, except in so far as they necessarily affect the interpretation of the figures. We give a sketch of Dr. Curtius's restoration, lettered so that the argument may be clearly followed.

Dr. Loeschke begins by conceding that the question of the original arrangement of the twenty-one figures of the pediment is still in part open. Only in part, however. For seventeen out of the twenty-one the position is fixed, either by their size in relation to the slope of the pediment, or by the description of Pausanias; or, again, by the exact spot in which they were found. These seventeen are the five middle figures standing in an upright position (which, though, as we shall see, they may be interchangeable among themselves, must occupy the centre), F, G, H, I, K, the two groups of four horses, D and M, and, according to Dr. Loeschke, the much-disputed "brooding old man" (*sinnender greis*) and the squatting or crouching boy (*hockender knabe*), N and O. Of these last two, some authorities concede only the "brooding old man," who, by common consent, takes his place immediately behind the right hand (fronting the spectator) horses. Dr. Treu, whose arrangement is followed at South Kensington, places the crouching boy in front of the left-hand horses, and fills his place behind the "brooding old man" by the figure of the kneeling maiden.

First,—and here he acknowledges the leading of Dr. Studniczka, of Vienna,—Dr. Loeschke attacks the commonly-accredited arrangement of the centre standing group. It will be remembered that the pediment represents the preparations for the race between Pelops and Oinomaos, king of Pisa: the prize if Pelops win is to be the hand of Hippodameia, daughter of Oinomaos; the umpire in the contest is naturally the Olympian Zeus himself. He occupies the centre, H; on the right-hand, G, stands the winning man, Pelops,—in the lucky right-hand place by his side his future bride, Hippodameia, F. On the left-hand (the losing place) stands Oinomaos, and by his side his wife, Sterope. We are bound to note, however, that it seems to us possible that conventional etiquette may have placed Oinomaos, the full-grown king, on the right-hand in place of the luckier, but younger, Pelops: a glance at the diagram will show, however, that the outstretched arms of G and I would thus be turned inwards and create an unpleasant artistic effect. Dr. Loeschke holds that Pelops occupied the right-hand place, but, following Studniczka, he thinks the wrong figure has been placed by his side as Hippodameia. He would transplant K, the so-called Sterope, and call her Hippodameia. Studniczka chiefly supports the change by considerations of dress; the simple Doric chiton of K he considers better fitted to a maiden figure. Dr. Loeschke, in addition, thinks that on artistic grounds K occupies the place of F more harmoniously, and that the folded arms and pensive droop of the figure suit the prospective bride. We cannot hold the matter proven on either side.

We pass to the far more interesting and perfectly original, and, as we believe, convincing interpretation that Dr. Loeschke offers us of the hitherto problematic figures intervening between the chariots and the river gods. The river gods, we should note in passing, are of certain interpretation and position, the left hand one, A, being the Alpheios, the right hand, P, Kladeos. Between the right hand horses, M, and Kladeos, P, are two figures, the far-famed "brooding old man," N, and the crouching boy, O. We begin with N. Perhaps no figure dug up at Olympia excited so much surprise and such prompt controversy. Pausanias, never a very accurate observer, took him for a groom; but if a groom, why the head resting on the hand, the furrowed forehead, the sunken, meditative eyes, the somewhat senile face? The fashion of grooms must have strangely changed if this is the typical ostler of ancient days. The type of the face is so markedly realistic that its characteristics cannot be unintentional, and it was the con-

sideration of these well-marked characteristics that led Mr. Newton to see in the impossible groom a seer, present as was fitting to preside over the rites that preceded the race. Dr. Loeschke gives the seer a name, a name of local might. From the beginning of time there dwelt in the plain the old god Kronos, of the crooked counsels (ἀγκυλομήτης); his hill (Kronion) it was that overhung the plain on



which the heroes raced, and he it was who in his crafty soul decided the issue of the contest. We have no second contemporary figure of Kronos with which to compare N; all known representations are of later Hellenistic times; but, if an artist of the fifth century desired to depict the crafty ancient god, we can imagine no more likely embodiment than this "brooding old man." Any who may have followed us in recent discussions on the "topographical" interpretations of the east and west pediments of the Parthenon will feel with us the great gain to the living interest of the pediment in this interpretation of the merely accidental and abstracted groom into the seer or the local divinity who, in actual presence, superintended the race.

We pass to the crouching boy, O. May he too prove a local divinity? Was there any youthful god of local import whose shrine was nigh to the hill of Kronos? For this we have not far to seek. On the very slope of Kronion towards the north, and not far removed from the treasure-houses, Pausanias (vi. 20, 1) tells us he saw a shrine where was worshipped the hero Sosipolis, by whom men swore in affairs of the greatest moment. The Eleans, at one crisis of their history, had been hard-pressed by the Arcadians; the boy Sosipolis was as yet a child at his mother's breast, and the mother dreamed the child should save the Elean state. They placed the child, naked, in front of their battle array, and, as the Arcadians came up, the child was changed into a snake, and, panic-stricken at the omen, the Arcadians broke and fled. The Eleans consecrated a shrine in their capital to their deliverer Sosipolis, saviour of the State, building it near to the temple of the goddess Tyche (Fortune). No doubt, the story bears the impress of an "ætiological myth"; but, none the less, the fact remains that on the hill Kronion was worshipped the hero Sosipolis, and that by him, down to late days, the most solemn oaths were taken: his worship has the appearance of an old indigenous cult, and we may, with no violence to mythological chronology, suppose him to have been present at the contest between Pelops and Oinomaos. The attitude of the youth seated crouching on the ground, and his position *between Kladeos and Kronion*, suit excellently with Dr. Loeschke's attribution.

To balance this local trio, Kronion, Sosipolis, and Kladeos, on the right hand, we must have something less vague than mere nameless nymphs, and grooms, and seers, on the left. Nor does Dr. Loeschke fail to give us again solid *local* ground whereon to set our feet. Turning to the left end of the pediment, the river-god (A) in the corner is already indisputably Alpheios; names and personalities have yet to be found for B and C, the maiden and the full-grown seated man. For the maiden (B), Dr. Loeschke offers a charming solution. It had already been noted that she turns towards Alpheios, as if some marked connexion were intended; she turns away from the action in the centre as if the river-god were to her more than all beside. There was one maiden goddess much worshipped in Olympia, and not over-prone to love, but she was wooed by the river-god, Alpheios, and shared a shrine with him; Artemis, who bore the surname, Alpheiousa. According to the story in Pausanias, the goddess was not over-gracious to her lover, but bade her maidens pelt his face with mud; but the sculpture, if Dr. Loeschke's interpretation be true, adopts a milder version of the story. The goddess seems bending down to the ground, or it may be that in the space between her and Alpheus there was a stag sculptured, with which she played, while the river-god watched her as she lay.

It will not be forgotten that much of the worship at Olympia centred round the taking of oracles, and all modern interpreters of the pediment have wished to see, in one or other figure, a representative local view. The figure C remains a figure of dignified aspect with a broad band about the hair, and possibly having once carried a sceptre in the left hand. If the figure represents a seer, seated, as he is, on the ground, he must be of Chthonic origin. We scarcely need hesitate for the name,—Iamos, ancestor of the great race of seers, the Iamidæ,—Iamos, son of Apollo and Evadne, the babe whom, "by the counsel of the gods," Pindar tells us, two bright-eyed serpents nursed, and fed him with the harmless venom of the bee; and when he grew to be a youth, at night-time beneath the heavens, he cried to Apollo, and the infallible voice of his father answered and said to him, "Arise, my son, and come hither, following my voice, into a place where all men shall meet together." So they came to the steep rock of lofty Kronion; there the god gave him a twofold treasure of prophecy that, for the time then being, he should hearken to his voice that cannot lie. Thus Iamos was at home in Olympia before the coming of Herakles, before the contest of Pelops and Oinomaos; he completes the assemblage of the primæval local gods, Kronion, Sosipolis, Kladeos, Iamos, Artemis Alpheiousa, Alpheios. It will be seen at once that this scheme of interpretation, hanging closely as it does on questions of topographical juxtaposition, necessitates the arrangement of Dr. Curtius; it will be seen also what a lively and beautifully real background of local scenery it lends to the scene of contest in the centre. Did space allow, we might also dwell on another point which Dr. Loeschke emphasises, *i.e.*, the close parallel which the pediment, thus arranged and elucidated, presents to the west pediment of the Parthenon. For this interesting question we must commend the reader to the original pamphlet, which is the last Dorpater programme, "Ad Sollemnia Cæsareæ universitatis Dorpatensis."

NOTES.

THE Social Science Association, it is understood, is about to retire from public appearances for a time, and there can be little doubt, we suppose, that this is really a preparatory move to winding up the concern. Latterly, it has been evident to those who attended its congresses that the interest in its meetings has been declining; but this is no excuse for the kind of requiem which some of the papers have been singing over it. It is undoubtedly true that your typical Social Science man was a formidable bore; but then the congresses were not solely made up of typical Social Science men. The name in itself of the Association assumes a great deal, and incites in the critical mind the question, is there a social "science" properly so-called? And it impresses on the more mercurial temperament of the artist and literary man the feeling which Mr. Matthew Arnold expressed so delightfully when he alluded to "those bold, bad men who attend Social Science Congresses." But with all this, there is no doubt, among those who know the past history of the Association and of some of the subjects it dealt with, that it has done a great deal in calling attention to errors and neglect in such important subjects as sanitation, education, legal reform, &c.; and it is not too much to say that many of the most important improvements and advances which have been made in connexion with these and other departments of social organisation have had their initiative from the action of the Social Science Association; and that far more public benefit is traceable to the agency of the Association than some of its light-hearted critics of to-day have the least notion of. In fact, the Social Science Association might, we think, not unreasonably claim that, if it is *de trop* now, this is because it has done its work so well in compelling public attention to evils which, when the Association was started, really required that some such organisation should be established for inciting the public mind to action.

THE report of the Inspector appointed by the Local Government Board to inquire into the sanitary condition of the hamlet of Mile End Old Town practically finds that the Mansion House Council was right in pointing out certain sanitary defects, and that the defence of the Vestry fails. As regards the first point, that a large number of houses mentioned by the Council were without proper water-closets, the Inspector finds that 367 of them were of this kind, and he adds:—"As regards the closets in the hamlet the whole must be considered water-closets, and they should be provided with a suitable water-supply and with water-supply apparatus." We take it, therefore, that the actual number of houses with no proper supply of water-closets was greater than stated by the Mansion House Council. As to the second point he says:—"I found the large number of 365 houses in which dustbins were either entirely wanting or dilapidated." The Inspector also finds there has been a request on the part of the Vestry to put in force sanitary regulations, that further action should be taken under the Artisans' Dwellings Act, and that the staff of sanitary inspectors is insufficient. Lastly, his attention was directed to a *new* block of artisans' dwellings on Stepney Green. Of these he says:—"I consider them as to some of the rooms quite unfit for habitation, being deficient in light and air and the necessary sanitary appliances, but they do not contravene the provisions of the Metropolitan Buildings Act." We have done no more than give the Inspector's findings. These are enough to show that some parts of London are ripe for an outbreak of cholera, that vestries are negligent, that the Building Acts require alteration, and that it is clearly useless to pull down blocks of houses and replace them by blocks of artisans' dwellings, unless the latter are properly built on recognised sanitary principles. We regret we can at present give no more prominence to this report, which shows how much energetic action is required by the Government, by Local Boards, and by the Legislature, in order to put the metropolis and our large cities into a proper sanitary condition.

AN interesting statement is given in a recent number of the *Revue Scientifique* as to the great development of tramways in the different parts of the world, especially when we consider that, as far as the Continent is concerned, the commencement of the system only dates from 1856, when the tramway from Paris to Versailles was opened, followed, in 1863, by one at Copenhagen. In proportion to its size, Holland has been the most active in this matter, possessing at the commencement of last year 625 kilomètres (1 kilomètre = about 5 furlongs), employing 712 cars and 305 mer-

chandise-wagons. The number of passengers carried in the year was 24,270,000. In Germany there are 48 towns and cities with tramways, with a total of 903 kilomètres, employing 8,100 horses and 69 steam-engines. The number of passengers was 190 millions, and in Vienna 36 millions. France is rather more backward in tramway development, there being only about 700 kilomètres, of which Paris contains 250, employing 5,000 horses. Italy has made great strides in this direction, possessing over 1,000 kilomètres, principally in Turin, Milan, Florence, and Naples. In Florence and Milan, more especially, steam trams are in use, not so much for town work, but for the accommodation of adjoining towns and villages, to which trains run along the high road at regular intervals, for distances up to ten miles or so. Belgium possesses about 150 kilomètres, of which the greater portion is found in Brussels. Russia has 600 kilomètres, Spain 100, while Portugal has only one tramway, at Lisbon; Turkey one, at Constantinople; and Greece one, between Athens and the Piræus. The United States are, of course, the great home of the tramway system, without which the inhabitants of the cities of magnificent distances would come badly off for inter-communication. In 1882 North America had 5,000 kilomètres, of which 800 were in New York, while South America had 1,500, principally at Buenos Ayres. In the States, however, the mileage must be very largely increased by this time, considering that the first duty on founding a city (and sometimes before) is to lay the rails for a tram-car.

FROM a passage in the *Sunderland Daily Echo*, it appears that the corporation of Sunderland, having promised the competitors for the new Municipal Buildings to appoint Mr. Waterhouse as assessor, are now disposed to back out of their promise, it being found that "this concession to a little local feeling" will cost the ratepayers 100*l*. The frankness of the following quotation from the correspondent of the local paper referred to is amusing, and will no doubt edify the competitors:—

"I have seen the plans, and have conversed with those who have inspected them officially, and think it just as well to proclaim the fact that the feeling in favour of one set of plans is simply unanimous, the only question of doubt in the minds of some of the gentlemen relating to the possibility of the building being carried out for the sum stipulated. Granted a guarantee on that point and there is no necessity for paying anything like 100*l*. to any professional man for simply endorsing what has already been decided."

The idea that the professional assessor may not endorse the decision does not seem to occur to the candid writer. As to the "little local feeling," the *Sunderland Echo* is apparently ignorant of the fact that a great proportion of English architects have decided not to enter into competitions unless a professional adviser is employed to adjudicate. If corporations and other public bodies choose to say, "We can judge for ourselves perfectly well without professional assistance," they have, of course, the right to say so, only in that case a large number of the most able architects of the day will not compete. If things go as they seem to be going, in this case and the Fulham Vestry-hall case and others, the practical effect will be to deal a blow at the whole system of architectural competition, which, perhaps, would be a result little to be regretted. It would be interesting to know whether the author of the plans so "unanimously" admired is a Sunderland architect.

IN reference to our review of the life of the late Mr. John Dobson, in the *Builder* of April 17th, under the heading "A Fine Old English Architect," Miss Dobson, the author of the biography, writes:—"It may, perhaps, interest you to hear something more about Seaton Delaval. The first fire was about 1752; the second fire, 1820; my father's restoration, 1814, when he also added a new wing. He sent a coloured drawing to the Royal Academy in 1815 of this work, which created great interest at the time, and, no doubt, introduced the present artistic treatment of architectural perspective drawings. Until that time I believe they were treated in a different manner. After the fire of 1820 the building remained roofless. Some years ago my father added a roof and strengthened the walls. Before his final illness Lord Hastings, who succeeded Sir Jacob Astley, requested my father to make plans for the restoration of the building, which were never executed. Lord Hastings also died. No doubt the building will never be restored."

LAST year M. Tourtay carried out a series of experiments bearing on the influence of mortar joints upon the resistance of stone walls, which were described in the *Annales des Ponts et Chaussées*. He selected for trial three descriptions of stone, of which blocks and slabs were prepared, two of each being placed one upon another in the course of the trials. The spaces between were in some places not closed up, while in others liquid cement was poured into them, or they were filled with mortar (cement mortar or hydraulic lime mortar). In the tests the joints of cement mortar were $\frac{1}{5}$ in., $\frac{2}{5}$ in., and $\frac{3}{5}$ in. in thickness, and those of hydraulic lime mortar $\frac{2}{5}$ in. The proportion for mixing was about 10 cwt. of cement or hydraulic lime to 35·7 cubic feet of sand. Blocks of the mortars themselves were tested after twenty-one days hardening, with the result that cement mortar showed a resistance to pressure of 1038·3 lb. per square inch, and hydraulic lime mortar 284·46 lb. per square inch. The resistance to pressure of the stone varied, according to its description, from 5689·2 lb. to 12801 lb. per square inch, and that of the masonry was found to be from 1422·3 lb. to 4266·9 lb. less per square inch. At a pressure of 1991·2 lb. to 4266·9 lb. per square inch, the mortar at the edges of the joints began to exfoliate and fall out, and this occurred sooner in proportion to the thickness of the joints. The blocks which had been united by pure cement (without any filling of mortar), preserved their condition as if they had been made of one piece. The following general principles are deduced by M. Tourtay from his experiments, but would doubtless require further investigation and testing before they could be accepted as final:—1. The destruction of mortar takes place in masonry at a much higher pressure than in blocks of the mortar itself, but at a lower pressure than in the case of the stone separately. 2. The pressure which causes the destruction of the mortar is in an inverse ratio to its thickness, so that (under conditions otherwise equal) it is advisable to make joints of mortar as thin as may be consistent with proper execution of the work. 3. Trial blocks, simply placed on each other, and without any filling of the spaces between, gave results as to resistance to pressure which were inferior to those of the separate stones, but superior to those of the slabs joined by mortar. 4. The trial blocks, between which a thin layer of pure cement had been placed, maintained their efficiency like complete blocks, and gave results far superior to those obtained in cases where mortar had been used. Although the strength of cement mortar was found, on separate testing, to be more than three times that of hydraulic lime mortar, there was no important difference found in the trials of masonry constructed with the two kinds of mortar. Attention is finally called to the necessity of the horizontal joints being very exactly worked, in order to render them suitable for the mode of construction referred to above in paragraphs 3 and 4.

IN regard to foreign water supplies, it may be noted that the City of Rome is supplied by 204,000,000 litres of water every twenty-four hours (1 litre = $1\frac{3}{4}$ pint), drawn from the following sources:—

	Litres.
Vergine or Trevi	80,000,000
Felice	24,000,000
Paola	40,000,000
Marcia	60,000,000
	204,000,000

The population of Rome being 345,036, the supply of water to each inhabitant per day is 591 litres.* Paris, which contains 2,240,124 inhabitants, only gives 58 litres per head for drinking purposes and 169 for domestic and other requirements, or a total of 227 litres. Berlin, with a population of 1,302,283, supplies 140 litres per head daily. Vienna, with 770,014 souls, gives 100 litres. Naples gives 200 litres to its 463,172 inhabitants, and Turin 98 litres to a population of 278,598. It will, therefore, to be seen that if immunity from epidemic diseases depends upon the supply of water, the Italian capital ought to be the most healthy city in the world.

* A litre is 0·22 of a gallon.

ON the site of the ancient Mantineia a colossal statue has been excavated, representing a discus-thrower. The statue is about to be taken to the Central Museum at Athens. Material and style are as yet unreported. We can scarcely venture to hope that it may be a bronze, and thus furnish us with some accurate notion of the style of the great discus-thrower of Myron.

THE *Berliner Philologische Wochenschrift* reports that Dr. Dörpfeld has undertaken (on behalf of the German Archæological Institute at Athens) to superintend the excavation of the ancient Doric temple at Corinth. So far the remains discovered have been scanty, but enough has been laid bare to make out the ground-plan of the building, one door, and the pedestal of a statue within the walls. Dr. Dörpfeld thinks that the building is an instance of the not uncommon custom among the Greeks of a joint temple, dedicated to two gods at the same time.

A NEW 48-in. main has been laid from the Pultah waterworks to Calcutta, which will supply that city with 12,000,000 gallons a day by gravitation alone. The *Pioneer*, an Indian newspaper, says:—"Tenders were invited for the work, but they were so high that Mr. Kimber, Engineer to the Corporation, resolved to frame estimates of his own, and the iron pipes having been contracted for in England, he was allowed to do the work. The result is that the pipes have been laid at an expense less by five lakhs than the lowest tender sent in for the work; and, moreover, the total cost is $1\frac{1}{4}$ lakh less than Mr. Kimber originally estimated. This great saving has been due to careful management, and to some good fortune in the way of the physical difficulties of the ground being less than were anticipated. Mr. Kimber and his staff have well earned the gratitude of the Corporation, and of the ratepayers too; for the latter have to pay for works of this kind, and with heavy loans for other purposes having to be contracted, every lakh saved means so much less taxation. The five lakhs saved represent a sum more than sufficient to pay for the new pumping-engines, and the buildings to contain them, at Pultah."

THE series of articles in progress in the *Art Journal* on "The Revival of Decorative Needlework" and on "Suggestions in Decorative Design from the Works of Great Painters," are well worth the attention of architects and decorative designers. Among the illustrations to the former are four beautiful designs by Mr. Burne Jones for outline embroidery, emblematical of the four seasons. The second-named article is illustrated by engravings from portions of architectural design from several pictures in the National Gallery, following out, in another branch of decoration, the idea embodied in Mr. Sydney Vacher's fine work on suggestions for textile fabrics from the same source, which we recently reviewed.

THE "Society of British Artists" exhibition has more of variety and originality than usual, though this arises chiefly from the presence of some of the more eccentric elements in modern art. The most noteworthy work is a life-size figure study by Mr. Whistler, "Harmony in Blue and Gold" (298), which would send Mr. Horsley and the British Matron into hysterics, being a damsel leaning against the rail of a pier with a Japanese parasol over her head, but otherwise only a transparent film of gauze in the way of clothing;

the weight of the body is thrown on one leg, the other foot crossed over it; and the leg which carries the weight of the body is, as a bit of expression of anatomical construction and action, like the Princess Katishka's left shoulder-blade, "worth going miles to see," and shows what a master of the figure Mr. Whistler is when he takes it into his head to let people know it. Among the works of the rebellious school is Mr. Stott's "Kissing Ring" (341), some very sad ghosts of children in the midst of a still sadder expanse of shore; a picture which is a piece of pure affectation, only saved by being not altogether commonplace. Affectation reaches its climax in "A Portrait Sketch" (104), by Mr. Munn, where the lady's hand and arm die away into a mist. We remember critics laughing a few years ago at one of Smirke's pictures at a loan exhibition at Burlington House,—"Nutting," with figures which *Punch* called "Ghosts at Play"; this was the kind of thing, we were told, from which Pre-Raffaellitism delivered us; and now here are the new reformers in painting coming round to the very same thing again, and thus the whirligig of Time brings in his revenges. There are some very pleasant pictures scattered up and down the rooms,—chiefly small works in landscape and "seascape." Mr. Fraser's "Fishing Boat passing Southend Pier" (464) is disappointing; it has his usual swing and movement of the sea, but is too muddy and opaque,—not without power of a kind, though.

WE have received the first number of a professional journal to be issued at Calcutta, under the title of the *Indian Engineer*. It appears likely to give a great deal of useful information as to what is doing in engineering work in India. The illustrations are not executed with anything like the finish we are accustomed to in English engineering papers, but there may be difficulties we do not know of in the way of procuring well-executed blocks in India.

CONCERNING Mr. Whistler's Exhibition of "Notes—Harmonies—Nocturnes" at Messrs. Dowdeswell's Gallery we must speak next week, being only able to testify from our own knowledge that on the afternoon of the private view day (Thursday) there was such a crowd that to penetrate through the narrow front shop to the harmonious sanctum was impossible, except for those who had unlimited time at their disposal. The catalogue shows that there are seventy-five "Notes," and "Nocturnes," and "Arrangements," and other artistic evolutions to be seen; but whether they were worth the rush that was made to see them is a matter whereon we suspend judgment.

LETTER FROM PARIS.

THE preparation for the Exhibition of 1889 only awaits the vote of the Senate to pass into the stage of active execution so long waited for. The Chamber of Deputies has approved, by 350 votes against 131, the agreement entered into between the State, the Prefecture of the Seine, and the Guarantee Association represented by M. Christophle, Governor of the Crédit Foncier. Unfortunately, the vote of the Chamber is not definitive; the Senate must ratify it. Parliament is adjourned to the 29th of May, and we have only three years to prepare for this gigantic work. The decision of the Chamber gives a practical character to the paper by M. Georges Berger at the Société Centrale des Architectes this week on the exhibition.

A word about the necessary complement of the Exhibition,—the Metropolitan Railway. The Government, in regard to this matter, is in conflict with the representatives of the Municipal Administration, who wish to take it up as a matter affecting *local* interests, while the Government considers it a matter of *general* interests. It is a dispute of words only, for the municipality must undoubtedly have a financial participation in the matter, and undertake some indispensable road works. The question thus presented may lead to further delay, for the municipality is very jealous of its prerogatives, and will refuse to accept subsidies; but a solution of it becomes every day more imperative. The project of the Government seems very well conceived, and such as to conciliate the interests of all quarters of Paris. It includes four distinct lines, an inner circle running to 20 kilomètres of line, partly on a viaduct, partly in tunnel, and partly in open cuttings, and three cross lines. The first of these is from the Gare St. Lazare to the Gare du Nord; the second from the Square Drouot to the Avenue Daumesnil; the third from the Place du Strasbourg to the Place Denfert Rocherau. These lines, which form one system, will have sixty-four stations at a distance of about 500 mètres apart. Except in minor details, the project does not differ much from that which M. Haag, as mentioned in our last letter, has already traced out.

The military mind, formerly so adverse to the suppression of the fortifications, has at last accepted the decision for the demolition of the fortified *enceinte* between the Seine and the Porte de Romainville. According to the project submitted to the Municipal Council, and which will certainly be approved, the bastions will be replaced by a mere sunk fence between two large boulevards, which will mark also the limit for levelling the *octroi* rates. It is estimated that it will take three years to carry out the change, and to establish, with the results of the sale of the lands of the "Zone Militaire," new forts around the circumference.

The Ministry of War, which in this matter has shown itself very favourable to the true interests of Paris, deserves besides the recognition of artists, for it is credited with the intention of having some important paintings executed; first, to adorn the *salons* of the Minister of War with the portraits of all his predecessors up to our own day; and, secondly, to decorate the various barracks with mural paintings recalling the great military deeds of the French army.* A peevish criticism might question the utility of this latter intention, which reminds one of the disagreeable frescoes with which Benedict Masson decorated the court of the Hôtel des Invalides. But, as we have hitherto had no instance of a Ministry of War playing the Mæcenas, while giving the news with a certain spice of incredulity, we offer up our devout prayers that General Boulanger may indeed give this pasturage to hungry artists looking for the official commissions which are now becoming less and less frequent.

On the eve of the *Salon* artistic news is scarce; artists are reposing after their toils, and what there is going on may be briefly told. The competitors for the Prix de Rome, in the first place, are entering on their course of work. Here are the names of the ten young painters admitted by the Académie des Beaux Arts, and of whom six are from the atelier of M. Cabanel:—MM. Lavalley, Danger, Tollet, Lebayle, Bourgonnier, Millocheau, Charpentier, Verdier, Sinibaldi, and Cabane. The ten sculptors are MM. Denan, Capellaro, Charpentier, Larche, Gauquié, Gasq, Convert, Verlet, Desvergne, and Chavaillard.

Speaking of the Académie we may mention that the architectural prize founded by Duc has been adjudged this year to M. Chancel, and that the subject was "a hall for lectures and public meetings."

The exhibition of the works of Baudry, opened at the École des Beaux Arts since the commencement of the month, fulfils all that it promised, and draws daily a large concourse of visitors. It is truly a remarkable collection, and we regret we have not space to pass in review this assemblage of works for the most part of so fine and original a character and so powerful and masterly in execution. M. Lenepveu has, we may observe, the commission to execute the work at the Panthéon which the State had entrusted to Baudry, and which still remains unaccomplished.

The equestrian statue of Etienne Marcel, which was the subject some years ago of a public competition, has, during the last few days, been placed in the garden of the Hôtel de Paris, on the Quai de Gêsvres. The work has been completed by M. Marqueste, who received the second premium, the death of the original artist having prevented his carrying out his design. The statue, cast in bronze at the foundry of MM. Thiébaut Frères, is a work of fine character and conception, and sufficiently decorative in style. But the pedestal erected from the designs of the late M. Ballu is far from lending itself to the exterior decoration of a municipal palace. It is indispensable that the Service des Beaux-Arts should have it modified and brought into scale, so as not to break the outline of the building and the general harmony of its architecture.

The second exhibition which the Pastellites are opening this month in the Georges Petit Gallery, is a kind of preface to the *Salon*. The public find there the works of some of their favourite artists, and the success of this little exhibition increases every year, the rather since pastel is a very charming form of art, which declines grave and serious subjects, and confines itself to coquettish and *spirituelles* compositions, fugitive impressions rendered without labour, pretty portraits in the glitter of variously-coloured robes. The new exhibition presents a collection very agreeable to look at, and from which it would be difficult to select any work as deserving of higher praise than the rest. We may mention, as equally worthy of note, the exhibits of MM. Gervex, Guillaume, Emile Levy, Brune, Duez, Jacquet; and, with certain reserves, M. Besnard, whose real talent runs a little wild sometimes into a rather over-acted "impressionism."

In this interval of artistic quietude, Parisian painters will rejoice at the news that the Department of the Seine is about to put up to competition the work of decorating the new Mairie of Pantin, a pretty good building from the designs of M. Guelorget. This decoration (of which a portion will be given to the artists obtaining the second and third premiums) will include three great rooms and the ceiling of the grand staircase. The competition will be decided next November.

As the *Salon* will have opened its doors by the time these lines appear, it may be of interest to give now the names of the jury of architecture for this year, which includes MM. Bailly, Charles Garnier, Vaudremer, Questel, Brune, André, Diet, Pascal, Hénard, Daumet, Raulin, and Sédille, with MM. Normand, Bœswilwald, Ginain, Mayeux, and Deslinières, as "jurés suppliants."

We have to note, in conclusion, the death of M. Emile Laisné, architect, a modest and conscientious artist, who was a pupil of Blouet and of M. Questel. M. Bailly made him his collaborateur in the construction of the Mairie of the Fourth Arrondissement and in that of the Tribunal de Commerce. He held an official position under the Municipality as a director in the third section of architectural work, and leaves behind him unanimous regrets at the Administration and among his colleagues.

* When would the English Government think of appealing to the chivalrous sentiment of Tommy Atkins in such a manner?—ED.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

ANNUAL REPORT OF THE COUNCIL.

THE annual Report of the Council of the Institute, to be presented at the annual meeting on Monday next, and to which we briefly referred last week, contains the following paragraphs:—

"The proceedings of the past twelve months have possessed a more varied and important character than those of several previous years, and the Council believe that the Institute may congratulate itself upon the progress made in many matters which affect the profession of architecture quite as much as the corporate body of British Architects; though, at the same time, the official year has been marked by irreparable losses. A slight decrease, which is probably only temporary, in the total number of subscribing members, consequent upon the establishment of an educational test for admission to the class of Associates, was anticipated at the outset of the Obligatory Examination.

Five years ago (October, 1881) there were about 490 Associates; in October, 1885, there were more than 690 Associates; and at present (April, 1886) the number of Associates is 673. The number of Fellows has steadily increased from 370 in 1881, to 404 in 1885, and they are now 416. During the year 17 Associates have become Fellows; 27 new professional members have been elected, namely, 9 Fellows and 18 Associates; and 31 gentlemen who have passed the two recent Examinations in Architecture are eligible to become candidates for the Associateship.

The Hon. Associates elected during the year are Mr. Frank Holl, R.A.; Colonel Kingscote, a Commissioner of Her Majesty's Woods and Forests and Land Revenues; and Mr. William

Westgarth, well known in connexion with proposals for the amelioration of the poorer quarters of the metropolis. Eight foreign architects have been elected Hon. Corr. Members, two of them, MM. André and Daumet, being members of the Institut de France; and two being eminent Americans, Mr. Richard M. Hunt, of New York, and Mr. H. H. Richardson, of Brookline, Mass.; with Signor Boni, of Venice; Professor Fenger, of Copenhagen; M. Hermant, of Paris; and Herr Ihne, of Berlin.

The losses by death among the Fellows are:—Professor Donaldson, the founder of the Institute, and his friend, George Alexander; James Fergusson, the historian of architecture; J. H. Good and Sancton Wood, two of the oldest members; Thomas Goodchild, of Teddington; and F. W. Ordish, of Queniborough. Among the Associates:—George Borer, Henry C. Harris, E. E. Hollis, and A. T. Ellison, the last-named only recently elected, after passing the Examination in 1885. An Hon. Fellow, Edward Akroyd, is also deceased; and the decease of five Hon. Associates has to be recorded, namely, the Duke of Abercorn, the Lord Houghton, Henry Simmonds, the Rev. Benjamin Webb, and Sir Watkin Williams Wynn. Three Hon. Corresponding Members have died during the official year, one a distinguished archæologist of Athens, Lysandros Kaftangioglou, a friend and contemporary of Professor Donaldson; another, Théodore Ballu, Member of the Institut de France, architect of the Church of the Trinity in Paris, and of other well-known works; and the third, Professor von Dehn Rotfelser, of Berlin, and formerly of Cassel.

The death of Professor Donaldson,—the sole survivor of fourteen architects who met on the 13th of May, 1834, at 14, Regent-street, and passed a resolution that it was desirable to form an institution for the promotion of architecture,—occurred on the 1st of August, 1885, at a time when most of the members were out of town. The Institute, nevertheless, was represented at the funeral by the President, several members of the Council, and a large gathering of Fellows, Associates, and Hon. Associates. A letter of condolence with the family of the deceased was addressed by the President to Mr. T. Olinthus Donaldson, the eldest son, and at the opening meeting of the current session the Hon. Secretary took the opportunity of expressing a deep sense of the loss sustained by the Institute through the death of the venerable Professor, and of sympathy with his family in their bereavement. One of the ordinary meetings was afterwards devoted to the reading of two memoirs relating respectively to Donaldson's professional career and to his connexion with the Institute.

The death of Mr. James Fergusson took place on the 9th of January, 1886, and on the day of the funeral, the President, with Mr. Waterhouse, R.A., Mr. Penrose, M.A., Mr. Hansard, the Secretaries, and other members of the Institute, attended to pay a last tribute of respect to the deceased architect and scholar."

[The revenue accounts and balance-sheets, divided into ordinary and trust funds, of the receipts and disbursements for the year ended the 31st of December, 1885, audited by Mr. Banister Fletcher, M.P., and Mr. G. H. Blagrove, are submitted with the report, together with the estimate of income and expenditure for the current year. The estimated income for the present year is 3,650*l*.]

"Since the issue of the last Report two Examinations in Architecture have been held, to which forty-one applicants were admitted. The first was held last February at Leeds, under the charge of the Leeds and Yorkshire Architectural Society. Of the eight gentlemen examined, six have passed, and the remaining two were relegated to their studies, with the privilege of again presenting themselves without fee. The Questions set for this Examinstion were prepared by members of the London Board of Examiners, and the Chairman of the Board, Mr. Arthur Cates, who attended at Leeds during the whole week, presided at the Oral Examination. The candidates' answers to the several papers of Questions were distributed among Examiners (all members of the Institute) appointed by the Council of the Leeds and Yorkshire Society, namely, Mr. J. Wreghitt Connon, President of the Society, Messrs. E. Birchall, C. R. Chorley, J. B. Fraser, and W. H. Thorp, who ultimately reported to the London Board. For the Examination held in London all but one of the thirty-three gentlemen admitted by the Board presented themselves. The Examiners who set the Questions and assigned the marks to the several candidates were Messrs. George Aitchison, E. A. Gruning, E. C. Lee, E. C. Robins, John Slater, Ernest Turner, and Aston Webb. The Moderators who superintended the written and graphic portions of the Examination, and two of whom were always present, were seven in number, namely, Mr. Walter L. Spiers, with Messrs. A. W. Anderson, F. R. Farrow, F. Hooper, H. Lovegrove, C. J. Tait, and E. P. Warren; and their report was of a satisfactory nature. The Oral Examination, which lasted three days, was conducted by the Board of Examiners, who reported that twenty-five of the thirty-two candidates had passed, and only one had not passed, while six were relegated to their studies for one year. No recommendation for the award of the Ashpitel Prize, which is given to the candidate who most distinguishes himself in the Examinations held during one year, has yet been made, seeing that another Examination is to be held in November next.

A pamphlet containing the regulations and programme of these Examinations, with a Memorandum of Advice to Candidates, published last October, was widely distributed throughout the country. The first edition being exhausted, a second, to be shortly issued, will include the Papers of Questions set at the recent Examination held in London, the Council having adopted the recommendation of the Board of Examiners to publish such Questions.

During the twelve months elapsed from April 1st, 1885, to March 31st of the present year, the number of volumes presented to the Library was seventy-four and to the Loan Collection six, exclusive of periodicals, reports and transactions of societies, and parts of works issued in a serial form.

A handsome bequest of the late Mr. Fergusson, of all the architectural works in his library not being duplicates of those already belonging to the Institute, will bring in a sudden addition of perhaps 150 volumes, and occupy all the available space in the present bookcases.

The works purchased comprise ninety-nine volumes and one pamphlet for the Library, and five volumes for the Loan Collection, together with several Parliamentary papers.

The attendance of readers in the Library is given in a tabular form. The day attendances show an increase of over 15 per cent., but the evening attendances a falling-off of 5 per cent., as compared with those of last year. Last year's figures were, however, from whatever cause arising, exceptionally high; and that the numbers are by no means lower than might be reasonably expected is evidenced by the fact that they show an increase of nearly 46 per cent. for day and nearly 33 per cent. for evening attendances over those of 1884.

The resolution passed at the opening meeting of the present session, authorising the Council to take certain steps in the matter of the site for the proposed Admiralty and War Offices, and to memorialise the Government in the name of the Institute, should they think fit so to do, was acted on at once, but, owing to the election of a new House of Commons, and the subsequent change of Ministry, the memorial was not presented to the First Commissioner of Works until the 1st March, 1886, when a considerable number of members of all classes of the Institute waited on the Earl of Morley, who courteously received their views on the subject of the memorial. The Council therein referred to the fact that as far back as June, 1882, they had submitted a suggestion for the proposed offices, and that their further suggestion comprised a scheme embodying (1) The widening of Whitehall by the removal of the whole of the buildings between the Horse Guards and Charing Cross; and (2) The opening-up of the Mall to Charing Cross; and the memorial laid stress upon the desirability of effecting these two improvements. A block plan of the Institute scheme, and a lithographed copy of the official scheme, were presented with the memorial, which was afterwards circulated to members of both Houses of Parliament and others.

The resolution agreed to at a business meeting held in March, 1885, with reference to the present condition of the *disjecta membra* of the colonnade of old Burlington House, now lying exposed on the Battersea bank of the Thames, was duly taken into consideration, and it was found that the matter had almost at the very same time formed the subject of a question in the House of Commons, when it was stated on the part of the Government that no use had yet been discovered for the colonnade, and no site for its re-erection had been even suggested. The representations ordered at the same business meeting to be made to the proper authorities on the subject of the old water-gate, known as York Stairs, and of Temple Bar, the stones of which had been carefully numbered for the purpose of its re-erection, were addressed to the Metropolitan Board of Works and to the Corporation of London, and the answers received were published in the Journal of Proceedings on the 13th August, 1885.

Two special general meetings have been held to consider the draft of a new Charter, for the grant of which it is proposed in due course to humbly petition Her Majesty the Queen. The proposal was made at the beginning of Mr. Christian's presidentship, and the appointment of a special committee, 'to take into consideration the practicability of a modification of the Charter, or the grant of a new Charter,' was announced at a meeting of the Institute held on the 19th of May, 1884. The committee recommended that a new Charter, reciting the objects and maintaining the date and prestige of the original Charter, should be applied for, and a draft, submitted to the Institute on the 30th of November, 1885, was considered. This draft was then referred to a larger special committee composed of the Council and nine representative members of all classes, with instructions to report to another general meeting. The committee's report, together with an amended draft, wers issued on the 25th of February, 1886, and considered by the Institute on the 5th and 6th of April, 1886, when the draft was further amended and, after two sittings of more than nine hours in all, was adopted, with certain reservations, which were intrusted to the care of the Council.

The report of a special committee appointed to consider the subject of Departmental Action suggested by Professor Kerr was submitted to the business meeting of the 29th of March, 1886, when a scheme was adopted for the establishment of four standing committees, for Art, Science, Literature, and Practice, to be elected at each annual meeting, whereby it is hoped that a large number of members may become increasingly interested in the work of the Institute.

The presentation of the Royal Gold Medal to Dr. Schliemann was made at the closing meeting of last session in the presence of a large assembly of members and their guests. The recent election of Monsieur Charles Garnier, the architect of the Opera House, Paris, as Royal Gold Medallist, has been graciously sanctioned by Her Majesty the Queen, and a letter has been received from Monsieur Garnier stating that he hopes to attend the meeting of the Institute at which the medal is formally presented.

The Metropolitan Board of Works having, in accordance with the provisions of the 16th Section of the Metropolis Management and Building Acts Amendment Act, 1878, given notice to the Institute that the Board proposed to apply to the Secretary of State for the Home Department to confirm certain new by-laws relating to the description and quality of concrete walls, and having forwarded a copy of the proposed by-laws, the Council appointed a special committee, consisting of Messrs. A. W. Blomfield, Charles Fowler, John Slater, and T. Roger Smith, with Mr. Alex. Payne, as hon. secretary, to consider the same; and their report having been adopted was in due course sent to the Metropolitan Board.

The Competitions Committee have diligently proceeded with their work, and are now engaged, with the assistance of the librarian, in preparing statistics of competitions held during the last four years, with a view of ascertaining what amount of success has attended their efforts to procure the appointment of a professional assessor. The committee will report on this, and on other matters of interest connected with competitions, as soon as possible.

The expressions of confidence in the Institute, recently received from the various architectural bodies established in this country and in the colonies, have been of a most gratifying character, more particularly those embodied in resolutions which have been passed by the Liverpool Society, the Nottingham Association, the Manchester Association, the Auckland (New Zealand) Institute, the Sydney (New South

Design for a Silk Brocade.

Wales) Institute, and others, and forwarded to the Council. An intimation, almost generally expressed, that efforts should be made to strengthen still further the excellent relations already existing between such local bodies and the Institute, has led to the appointment of a special committee, consisting of Fellows and Associates, and representatives, being members of the Institute, of the provincial societies, to inquire into the question of Federation. The consideration of the best means of furthering professional education, with particular reference to the Examination in Architecture, has been intrusted to another special committee, consisting of members of Council and members of the Committee of the Architectural Association, and others. The question of facilitating the admission of members of the Institute and of architectural students into public edifices, both at home and abroad, for the purposes of study, has engaged the attention of a committee of the Council, and a report has been received on the desirability of furnishing a form of credential testifying to the character of its bearers and to the objects in view, such forms to be in French, German, and Italian, as well as English, and to bear the insignia of the Institute."

Fulham.—The first stone of the Waste Land and Lygon Almshouses, Fulham Palace-road, was laid by the Lord Bishop of London on the 21st inst. They contain accommodation for eight couples and six single persons, and there is a large room for divine service and governors' meetings. The buildings are of brick, with stone dressings, and the style is Tudor. Messrs. Stimpson & Co. are the builders, the amount of the contract is 2,650*l.*, and the architect is Mr. J. G. Hall, of West Kensington.

DESIGN FOR A SILK BROCADE.

THIS design is an adaptation of a Sicilian pattern of the fourteenth century, on a small and much-decayed fragment in the South Kensington Museum. It has been woven in four colours, viz., cream, two reds, and a green, and has been registered by Messrs. Hilditch, of Cheapside, to whom it belongs. They have brought it out to supply some of their customers who have become tired of the patterns of this character at present in the market.

The grandest of their present patterns was taken from the dress of one of the figures on the Southwold Screen (St. Peter's, I think), and was brought out many years ago.

This kind of brocade is chiefly used for altar-cloths and vestments, but it is quite as adaptable for secular purposes.

SYDNEY VACHER.

ARCHITECTURAL ASSOCIATION: ITALY EXCURSION.

A MEMBER of the party has forwarded us the following brief notes *en route* of their impressions of buildings visited :—

"The Italian excursion of the Architectural Association started on Friday, the 16th inst., from Charing Cross at 10·35, the total number of members joining being twenty-four.

The first journey was made to Milan viâ Calais, Laon, Terquin, through the St. Gothard Tunnel, Chiasso, arriving in Milan at 7·41 on the Saturday night. In Milan the buildings visited were,—first, the cathedral; the completion of the central lantern is still being proceeded with" [the proposed alteration of the Renaissance work in the west front is, as our readers know, to be the subject of an important architectural competition]; "next, the churches of Sta. Maria delle Grazie, an interesting church, built externally with red brick and terra cotta; St. Ambrogio, a twelfth-century church, with open atrium at the west end, with very fine bronze doors in the west end; St. Lorenzo, built on the site of the old church in Milan in the sixteenth century,—the plan of this church is octagonal, with four apses on the principal sides in two stories: the dome, being a regular octagon, does not fit very well, but the general effect is good; St. Eustorgio, an uninteresting church in itself, but with a chapel at the back of the choir, with some good fifteenth-century detail, which also contains a splendid fourteenth-century tomb; the Ospedale Maggiore, a fifteenth-century building, with splendid terra-cotta detail, certainly one of the most remarkable buildings we visited in Milan; the old Piazza del Mercanti, in the centre of which is an old thirteenth-century brick building, formerly the Palazzo della Ragione. The buildings surrounding this are of fourteenth and seventeenth century date. The tower and apse of the Romanesque Church of St. Gosardo were carefully studied, but the building can only be well seen from the roof of the cathedral. From Milan an excursion was made to the Certosa, near Pavia, reputed to be the most richly furnished church in Italy. The monastery has been closed some five years and the remaining monks removed to Bologna, the Government having taken over the building as a national monument. The buildings are most carefully preserved, and access is given to every part. The principal façade of the church is fifteenth-century work of the most elaborate kind, the whole of the work being executed in marble; the other parts of the exterior are principally red brick and terra-cotta. The interior is completely covered with fresco, the fourteen chapels being complete museums of works of art, marble inlays, bronzes, frescos, and pictures. The two cloisters have colonnades with marble shafts and terra-cotta arches; round the larger of the two are the twenty-four houses containing three rooms each, viz., dining-room and work-room on the ground floor and bedroom and dressing-room on the upper floor; each room has a small garden.

The most striking modern building in Milan is the Galleria Vittorio Emmanuele, the archway opening into the Piazza del Duomo being a very dignified piece of work.

On Monday the Association went to Piacenza. The Palazzo del Comune is a handsome building, in brick and marble, of the thirteenth century, with an open arcade with pointed arches. The cathedral is Romanesque, of the twelfth century, with a very dignified western porch. The original cathedral, now the Church of St. Antonino, contains some interesting work of the tenth and eleventh centuries. The next town visited was Bologna. The principal church, dedicated to St. Petronio, and built in the fourteenth century, is an example of the ambitious designs of that period in Italy which have failed to be carried to completion. It is said to have been commenced as a rival to the cathedral at Florence, the width of the nave being 66 ft., the extended length being 750 ft., but only 384 ft. of this has been built. In the "Reverenda Fabrica" of the church is an interesting collection of models and drawings for the completion of the building by Palladio, Giulio Romano, and Vignola. The church, though generally bare of ornament and void of interest, contains in one of the chapels an interesting early fresco, and on the pavement a meridian line, which showed that the church was not orientated truly. The Church of Sta. Maria Maggiore is an uninteresting Renaissance example, with some quaint canopied tombs built in the open square outside the church. The Church of St. Dominico contains little of interest beyond the tomb of St. Dominico, a Renaissance monument of the fifteenth century. The most interesting church in Bologna is undoubtedly the Church of St. Stephano, which is the name given to a group of seven churches. The first, on a level with the street, dedicated to St. Stefano, is a seventeenth-century church of no interest; the second, at a slightly lower level, built in the eleventh century on a very irregular plan, is dedicated to St. Sepolino; the third, the most interesting of all, is the well-known twelfth-century circular church with the tomb of St. Petronius, built in imitation of the Holy Sepulchre, the altar being built over the tomb; the fourth church, now being restored, of

SS. Pietro and Paolo, contains some interesting Classic columns and pilasters and a tomb of St. Vitale dated 382; the other churches are of little architectural interest. Adjoining the churches is a two-storied cloister of the tenth and thirteenth centuries. The interior of the Church of St. Petronius has some interesting ornamental brickwork. The Church of St. Alessandro is a Renaissance church effectively decorated in grey and gold. The numerous arcades, the peculiar feature of Bologna, afforded an unlimited field for the study of Romanesque carving.

Florence was reached on the 21st, and a stay of four days gave a better opportunity of study than had hitherto been enjoyed. The first building visited was Santa Croce, which contains some monuments of great interest.* The next building was the Duomo, the western façade of which has just been completed under the direction of Sig. Del. Moro, from the designs of the late Signor de Fabris, and is to be uncovered in about six months' time. The churches of Sta. Maria Novella, St. Lorenzo, St. Michele, St. Spirito, St. Muriato, and St. Annunciata, the Medici Chapel, the Baptistery, the Bigallo, the Bargello, the Palazzo Vecchio, and the galleries of the Belle Arti Uffizi and Pitti, the Palazzi Ricardi, Strozzi, Gondi, and Pandolfini, were all visited and carefully studied. Excursions were made to Fiesole and the Certosa, and on Monday morning at 5·55 a.m. the train was taken for Siena."

TENDERING AT SWANSEA.

At the last monthly meeting of the Swansea Town Council, reported in the *Cambrian*, the Water and Sewers Committee presented a report stating that they had received a letter from Messrs. Baldry & Yerburgh to the effect that in making up their tender,—which was accepted at the previous meeting of the Council,—for sewerage works they had calculated that the bricks could be made from the same clay as that which will be used in the puddle trench, and that if the Committee insisted upon having a Staffordshire brick, a sum of 3,000*l.* must be added to their tender, making it 68,835*l.* instead of 65,835*l.*, but that if a satisfactory brick could be made from the local clay, they were prepared to carry out the work for the lesser sum. Mr. Yerburgh attended, and discussed the subject with the Committee, when the following arrangement was made:—That whatever sum be paid by the Corporation, calculated at 24s. per cubic yard, extra for brickwork up to 3,000*l.*, the same is to be allowed by the contractors out of the price for any pugging of clay that may be required, calculated at a reduction in price of 2s. per cube yard up to the extra price paid brickwork, viz., to 3,000*l.*

Mr. Trew, Chairman of the Committee, in moving the adoption of the report, said he very much regretted to find that the firm whose tender had been accepted for the construction of the Upper Lliw reservoir had found some discrepancy in their tender. He believed this arose from the persistency with which some members of the Council had insisted that the amounts of the whole of the tenders should be read out at the last meeting of the Council. He had thought that was a most unwise course to pursue. The Council ought to have confidence in the committee in such matters as these, and that all the tenders should not be publicly reported. He said this because the next day after the amounts of the other tenders had been made public they received a note from the firm whose tender they had accepted, saying they had made a mistake with respect to the quality of the bricks required, and that if Staffordshire bricks were required the Council must give them 3,000*l.* more, bringing up their tender to within about a 1,000*l.* under that of the next tender. He believed if they had not read out the amounts of the other tenders (if they had only kept their own counsel) they would not have heard anything of this 3,000*l.* extra. The firm alleged that they had tendered on the understanding that the bricks which would be required could be made out of the clay found on the spot, and not Staffordshire bricks; and that if Staffordshire bricks were insisted upon, then they must have 3,000*l.* added to their contract price. They had taken care even then to come as near to the next tender as they safely could, and yet secure the contract. They had thus succeeded, but as a set-off they had agreed to a rebatement of 2s. 6d. per yard on as much "pugging" as would not be required out of the quantity stated; so that although the firm had taken an advantage in one respect they had given it in another way; and the committee knowing that they were a firm in every respect most competent to carry out the works in a most satisfactory manner, now recommended that the contract be accepted.

Mr. Alderman Daniel seconded the resolution adopting the report of the committee.

Mr. Freeman inquired what was the price which the other parties who tendered required for the "pugging."

The Mayor put it to the meeting whether these details should be read out and made public or not, but not a single hand was held up in favour of the tenders being read.

Mr. Freeman said this to him was most unsatisfactory. He contended that when tenders were once before the committee, they became public property. He could not help expressing his surprise at the high tone of morality now taken by some members of the Council. Simply because of a clerical error which had been made by the firm whose tenders they accepted, they now wanted to cheat them out of this 3,000*l.*

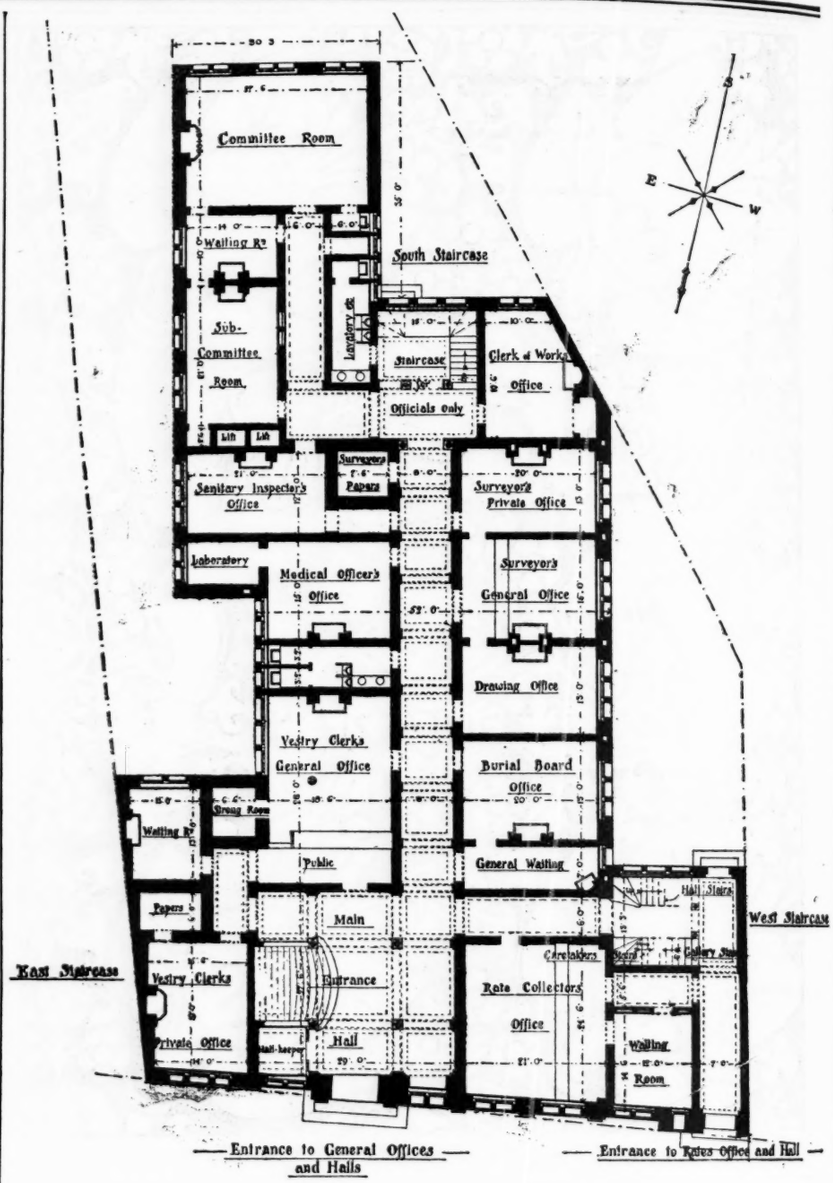
The Mayor said such was not the case. Every contractor tendering for the work was shown a brick, and it was distinctly said to each of them, "That is the brick we require"; and yet, after their tender had been accepted, they wrote down to say, "We tendered for a brick made of the local clay,"—a name of a Staffordshire firm being on the brick shown them.

In reply to a question from Dr. Rawlings, the Surveyor said that the word "Staffordshire" was not on the brick which was shown the firm.

The Mayor said that the firm whose tender had been accepted had taken three various samples of the clay found in the locality of the Lliw, and if they found that they could manufacture therefrom a sufficiently good brick for the purposes of the work, they would then save the additional 3,000*l.*; but if the Council insisted on Staffordshire bricks, then they would have to give them 24s. a yard more for any quantity required.

The resolution adopting the report of the committee was then carried.

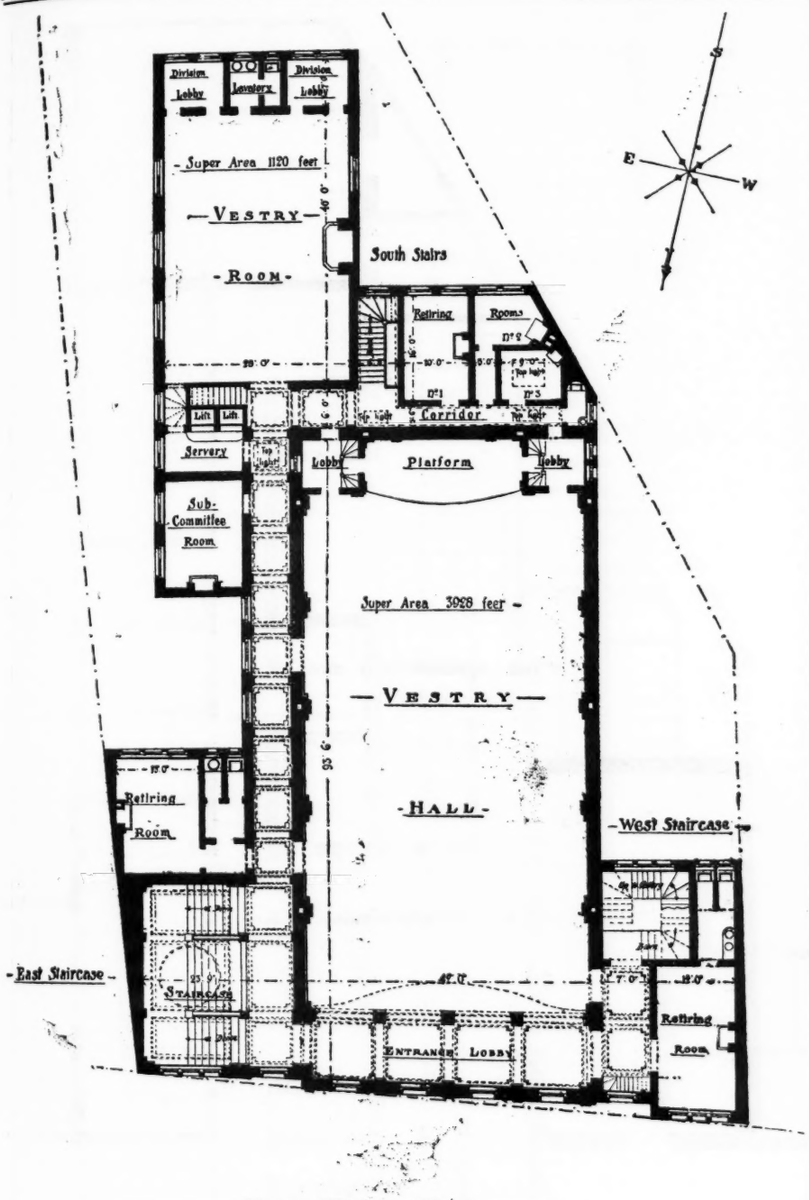
* We believe it does!—Ed.



— GROUND PLAN —

First Premiated Design for Fulham Vestry Hall.

Japanese Art.—Mr. Ernest Hart will commence, on Tuesday next, May 4, a series of three lectures at the Society of Arts, on "Japanese Art Work," including metal work, old lac, porcelain, pottery, picture books, and drawings. The lectures will be illustrated by examples of the great Japanese masters, from the eleventh century to the present date, including many examples of the work of the Miôchin, Korin, Sosen, Hokusai, Kenzan, and others. A loan exhibition of specimens from Mr. Hart's collection of historic Japanese works of art will be on view in the library of the Society during the course of the lectures from May 4 to May 18th.



FIRST FLOOR PLAN

First Premiated Design for Fulham Vestry Hall.

Illustrations.

FULHAM VESTRY-HALL COMPETITION DESIGNS.

WE give this week illustrations of the design submitted by Messrs. Newman & Newman for the proposed new Vestry-hall at Fulham, to which the first premium was awarded by the professional adjudicator, Mr. Currey, whose decision has been so discreditably thrown over by the Vestry, with gross injustice to those who had competed on the understanding that the decision of the professional adjudicator would be acted upon.

The design is a suitable one for the neighbourhood, though it cannot be said to exhibit any originality; it consists of that mingling of Classic pilasters with mullioned windows which has become fashionable of late, and which is here carried out with sufficiently neat and finished detail. But of the plan much more than this may be said. The authors have succeeded very cleverly in dealing with a very awkward site, and with the difficulty of lighting involved in having to arrange the ground floor rooms under a large hall on the upper floor. The staircase with a good light, at the end of the long passage, is a very good point, and the committee-rooms are well placed at the back and away from the noise of the street. The Vestry Clerks' general office would be rather deficient in light, and his rooms are at a long distance from the Vestry-hall; perhaps not a matter of much practical importance. In the main, the authors are certainly to be congratulated on their plan, and on the credit of having been selected from so large a competition by so sound a judge as Mr. Currey. It is to be hoped this will afford them some gratification, as this seems to be all they are likely to get from it.

FIRST SELECTED DESIGN FOR PUBLIC BUILDINGS, NEWCASTLE-UNDER-LYME.

WE give the perspective drawing of the design for these buildings as first selected in the original competition, and which the architects, Messrs. Sugden & Son, had (very naturally) wished to have published along with the modified design, of which we gave the geometrical drawings last week; but they did not contrive to make their wishes clear until too late for that arrangement.

As far as general picturesque effect is concerned, the original design by the one architect is certainly superior to that by the half a dozen architects, as given in our last.

THE NORTHUMBERLAND AVENUE HOTEL.

THE erection of this building was commenced by the Northumberland Avenue Hotel Company in the summer of 1883. A contract was then entered into with Messrs. Perry & Co., builders, of Tredegar Works, Bow. In preparing the site to receive the superstructure great difficulties were encountered from the treacherous nature of the ground. To reach a solid foundation it was necessary to carry down the excavations for the principal walls to the unusual depth of 50 ft. A large quantity of running water was met with while these works were in progress, and this being traced was found to come from an old rivulet which had its rise in Highgate, and fell into the Thames about this point. To keep this in check, a 10-h.p. engine and powerful pump had to be kept at work night and day for six or seven months while a bed of concrete 6 ft. thick was being laid over the whole of the site. Before the walls had been raised much above the ground-floor level the works had to be suspended owing to the failure of the original company. Towards the end of 1884 the premises were acquired by the Building Securities Company, who arranged with Messrs. J. W. Hobbs & Co., of Croydon and Queen's Buildings, Southwark, to carry on the works. It had been the intention of the first company to erect an hotel with a frontage to the Avenue of 353 ft. On the failure of the company, however, 53 ft. of this was lost. The new owners retained the services of the architects, Messrs. Isaacs & Florence, from whose designs the building had already been commenced. To suit the contracted frontage of 300 ft. the original design had to be considerably modified and remodelled.

The building consists of nine floors and a lofty basement, and its roof rises to a height of 122 ft. above the roadway level of the Avenue. The front elevation is faced throughout with Portland stone, from the quarries of Messrs. Crickmay & Co. and Messrs. Steward & Co. The stone carving of the upper floors has been executed by Messrs. Daymond & Sons, and the whole of the remainder, including the central arch, which is surmounted by two emblematic figures illustrative of Day and Night, by Mr. Boekbinder. Of the ironwork used in the construction of the building, the cast-iron stanchions have been supplied by Messrs. Young & Co., and the wrought-iron girders and stanchions by Messrs. Dibley & Son. The ornamental iron balconettes to the front windows are from the Art Metal Works of Messrs. Starkie, Gardner, & Co. The floors throughout have been constructed of a concrete compounded of coke breeze and Portland cement, in the proportion of 4 to 1, and for all interior lintels solid slabs of the same fireproof material have been employed.

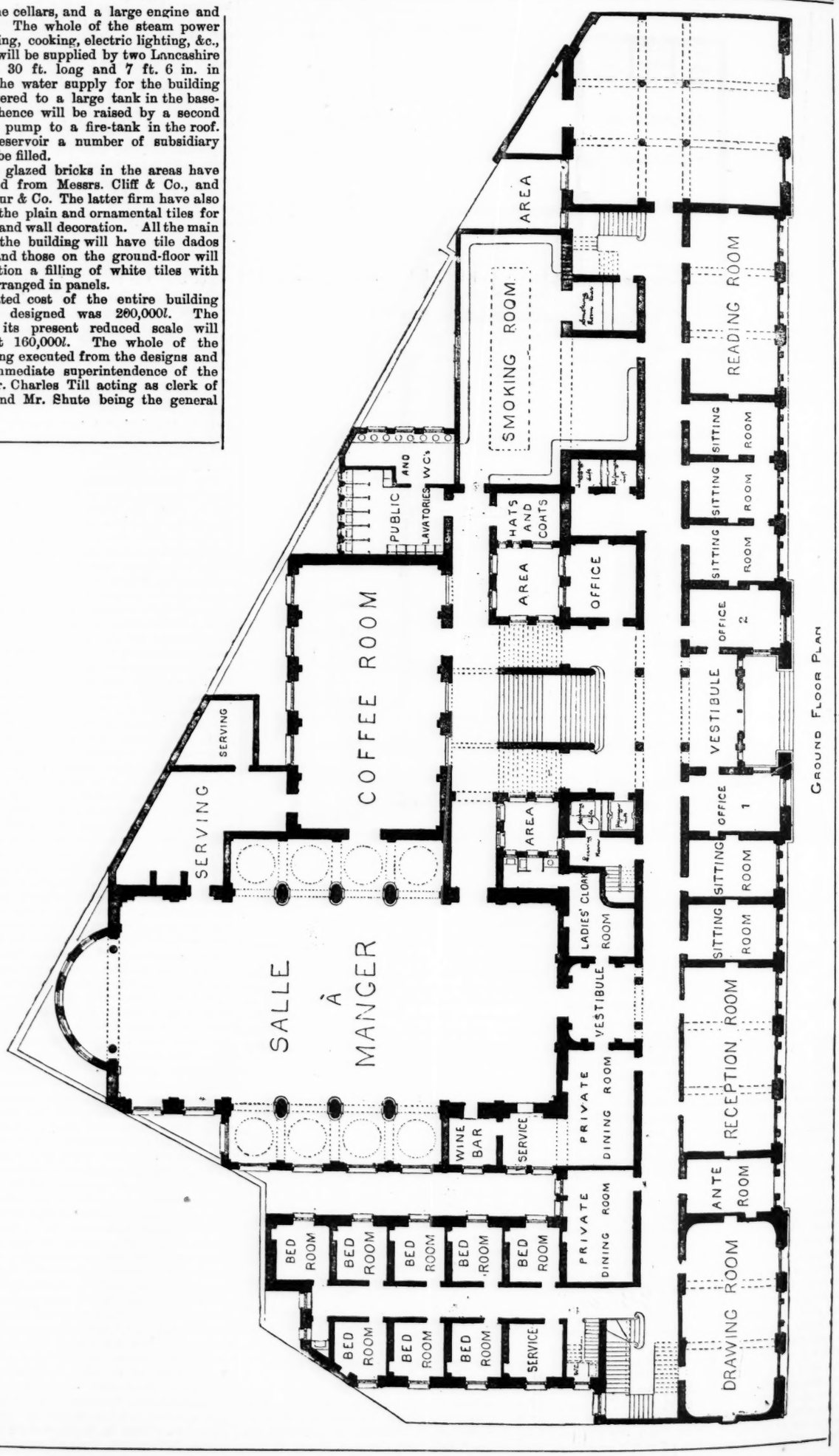
The internal planning has been devised to provide as compactly as possible all the accommodation required for a modern first-class hotel. The main entrance, which is in the centre of the building, leads into a large vestibule, and out of this a grand marble staircase, with return flights on each side, rises to the first floor. The upper floors can also be reached by a staircase at each end of the building, and by a double service of hydraulic lifts placed conveniently near the front entrance. In addition to the two passenger-cars, two additional cars have been provided for luggage purposes. These lifts will be worked by a Worthington pump in the basement; and the whole apparatus will be supplied and fixed by the American Standard Elevator Co. At a short distance from the entrance-hall, along the main corridor, an open vestibule affords access to the grand *salle-à-manger*, which is 100 ft. long by 42 ft. wide, exclusive of the apse at the further end and the wings at each side. This room rises through two floors, and is about 30 ft. in height. In addition to this spacious dining-hall there has also been provided on the ground-floor a coffee-room, 56 ft. by 30 ft.; smoking-room, 53 ft. by 37 ft.; reading-room, reception-room, ladies' drawing-room, several private sitting-rooms, general lavatory accommodation, and a range of bedrooms. Including those on the ground-floor there are about 500 bed and sitting rooms in the hotel. The electric light, in the form of incandescent lamps, will be used throughout the ground-floor and on all the upper floors. In some of the private sitting and reception rooms the Wenham light has been introduced. Beneath the marble staircase a wide flight of steps leads to a billiard-room in the basement, which is 80 ft. long, 40 ft. wide, and 16 ft. high. In this room there will be ample space for five billiard-tables. In close connexion there is a bar, and also a lavatory, for the use of players The other rooms in the basement include bed rooms, bath-rooms, general servants' quarters

store and wine cellars, and a large engine and boiler house. The whole of the steam power for the heating, cooking, electric lighting, &c., of the hotel will be supplied by two Lancashire boilers, each 30 ft. long and 7 ft. 6 in. in diameter. The water supply for the building will be delivered to a large tank in the basement, and thence will be raised by a second Worthington pump to a fire-tank in the roof. From this reservoir a number of subsidiary cisterns will be filled.

The white glazed bricks in the areas have been obtained from Messrs. Cliff & Co., and Messrs. Balfour & Co. The latter firm have also supplied all the plain and ornamental tiles for interior floor and wall decoration. All the main corridors in the building will have tile dados and plinths, and those on the ground-floor will have in addition a filling of white tiles with gilded bars arranged in panels.

The estimated cost of the entire building as originally designed was 200,000*l*. The building on its present reduced scale will probably cost 160,000*l*. The whole of the works are being executed from the designs and under the immediate superintendence of the architects, Mr. Charles Till acting as clerk of the works, and Mr. Shute being the general foreman.

The Northumberland Avenue Hotel.



GROUND FLOOR PLAN

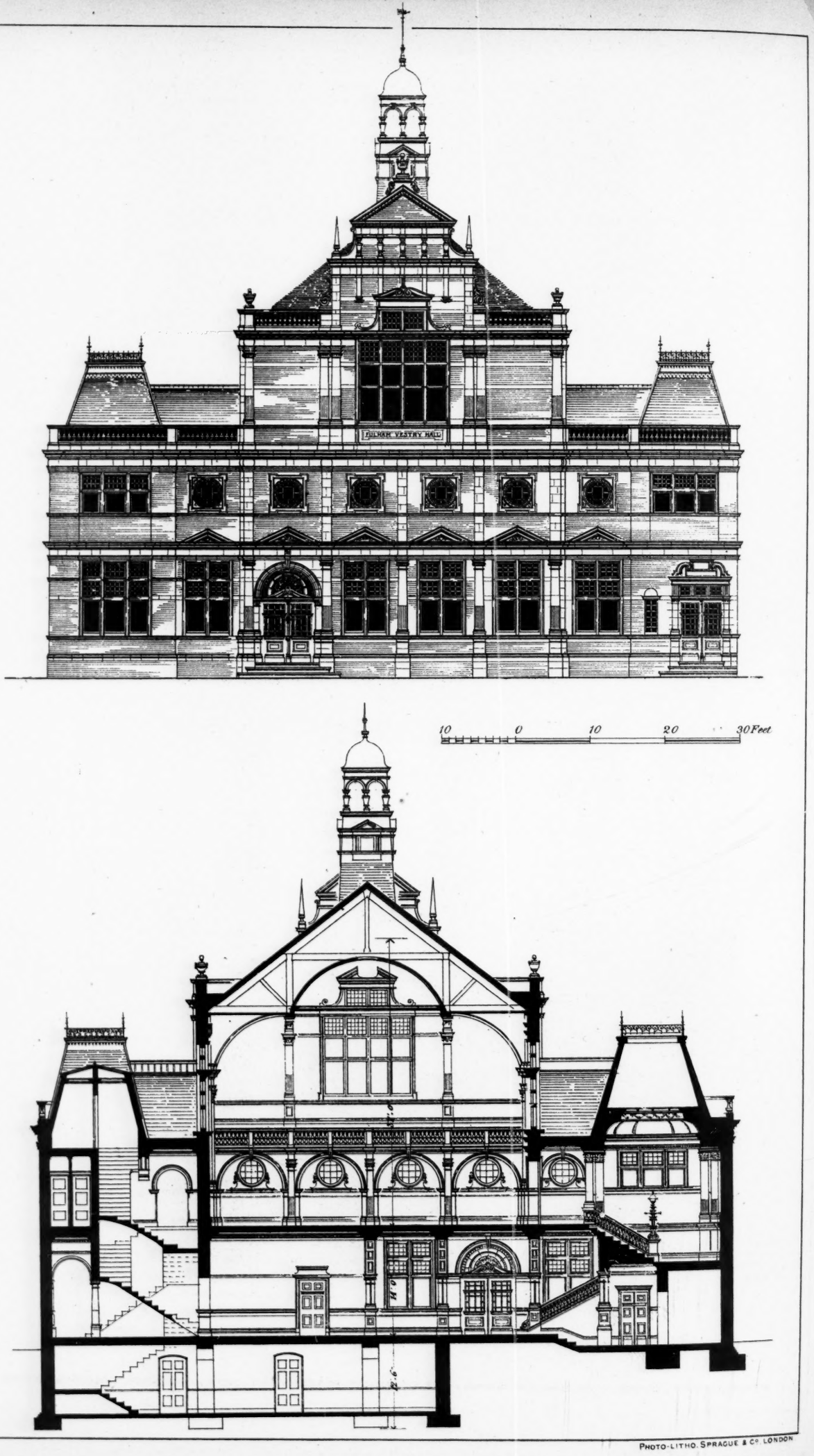


PHOTO-LITHO. SPRAGUE & Co. LONDON

FIRST PREMIATED DESIGN FOR FULHAM VESTRY HALL.—MESSRS. NEWMAN AND NEWMAN, ARCHITECTS.

FRONT ELEVATION AND SECTION ON LINE C. D.

DESIGN FOR NEW VESTRY HALL FULHAM

DETAIL OF FRONT

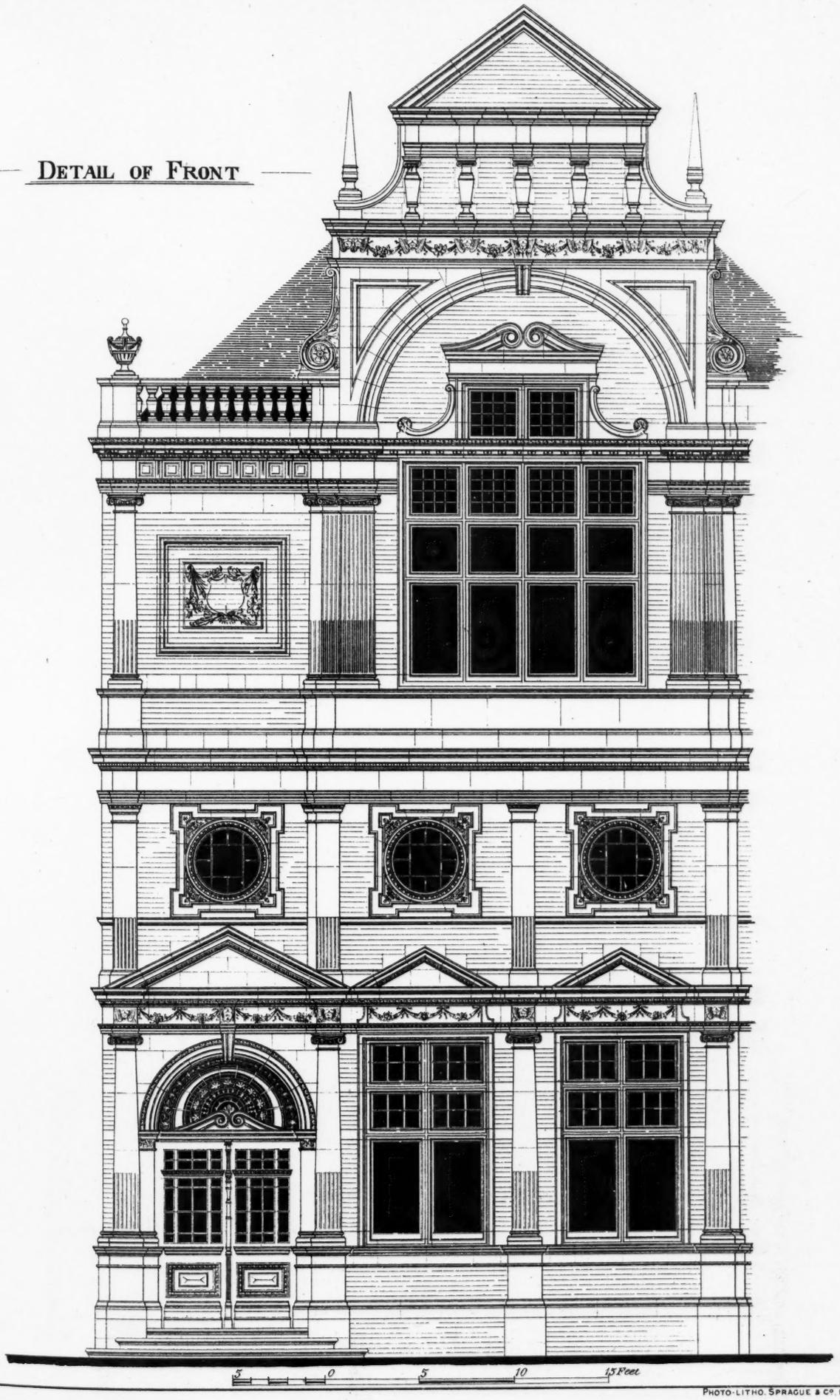
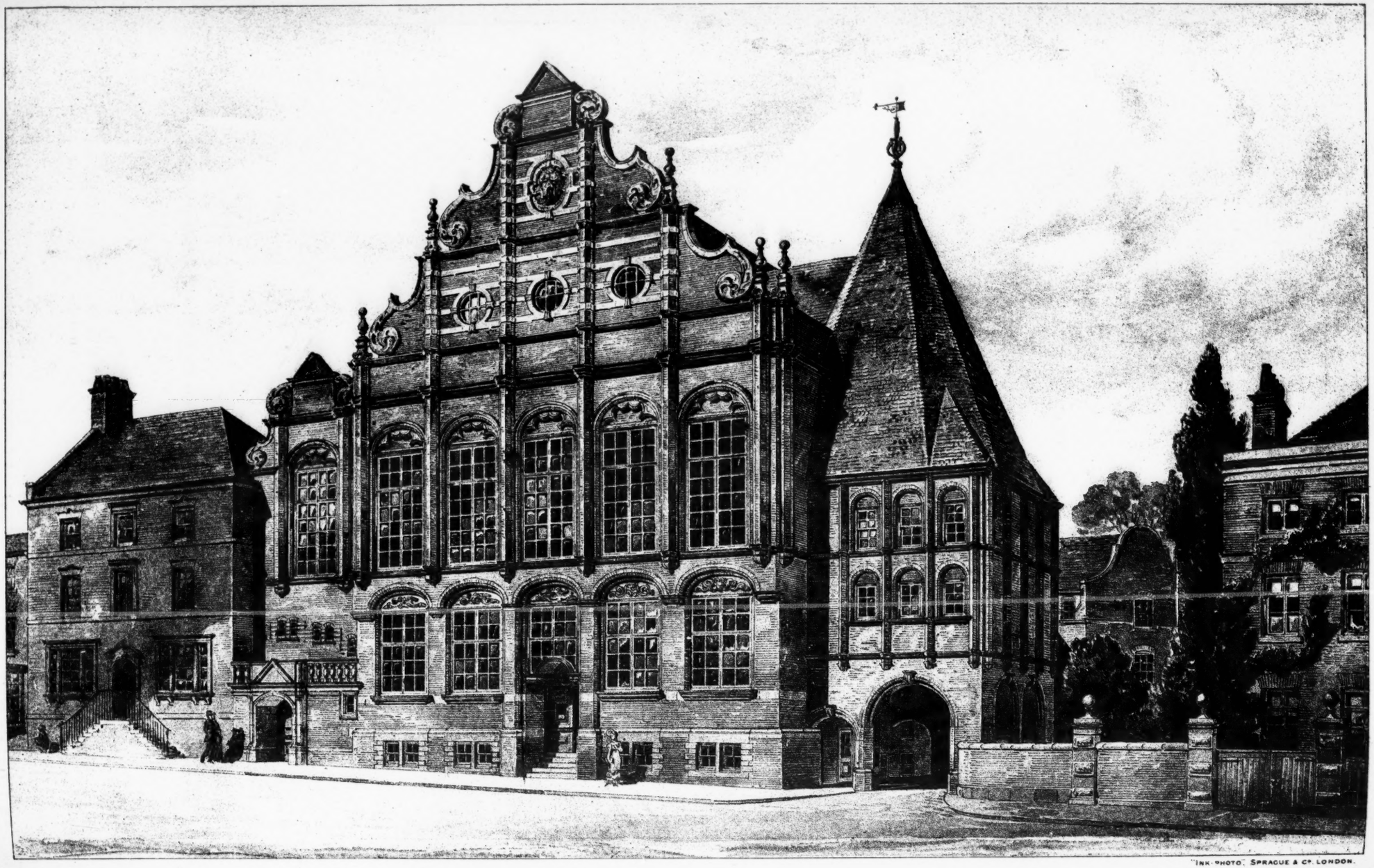


PHOTO-LITHO. SPRAGUE & Co. LONDON.

FIRST PREMIATED DESIGN FOR FULHAM VESTRY HALL.—MESSRS. NEWMAN AND NEWMAN, ARCHITECTS.

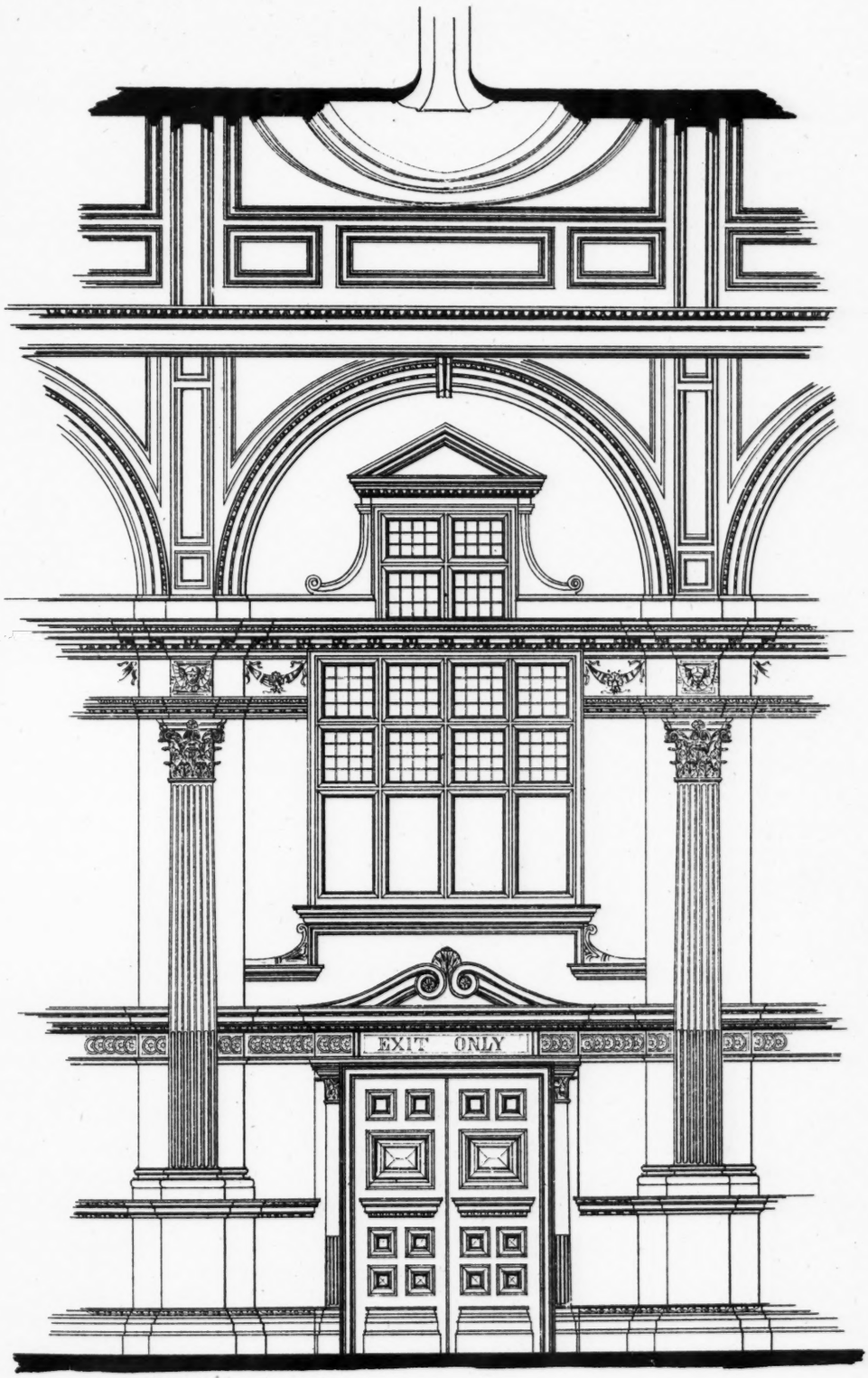


"INK-PHOTO." SPRAGUE & Cº. LONDON.

FIRST SELECTED DESIGN FOR NEW PUBLIC BUILDINGS, NEWCASTLE-UNDER-LYME.

MESSRS. WM. SUGDEN & SON, ARCHITECTS.

DESIGN FOR NEW VESTRY HALL FULHAM

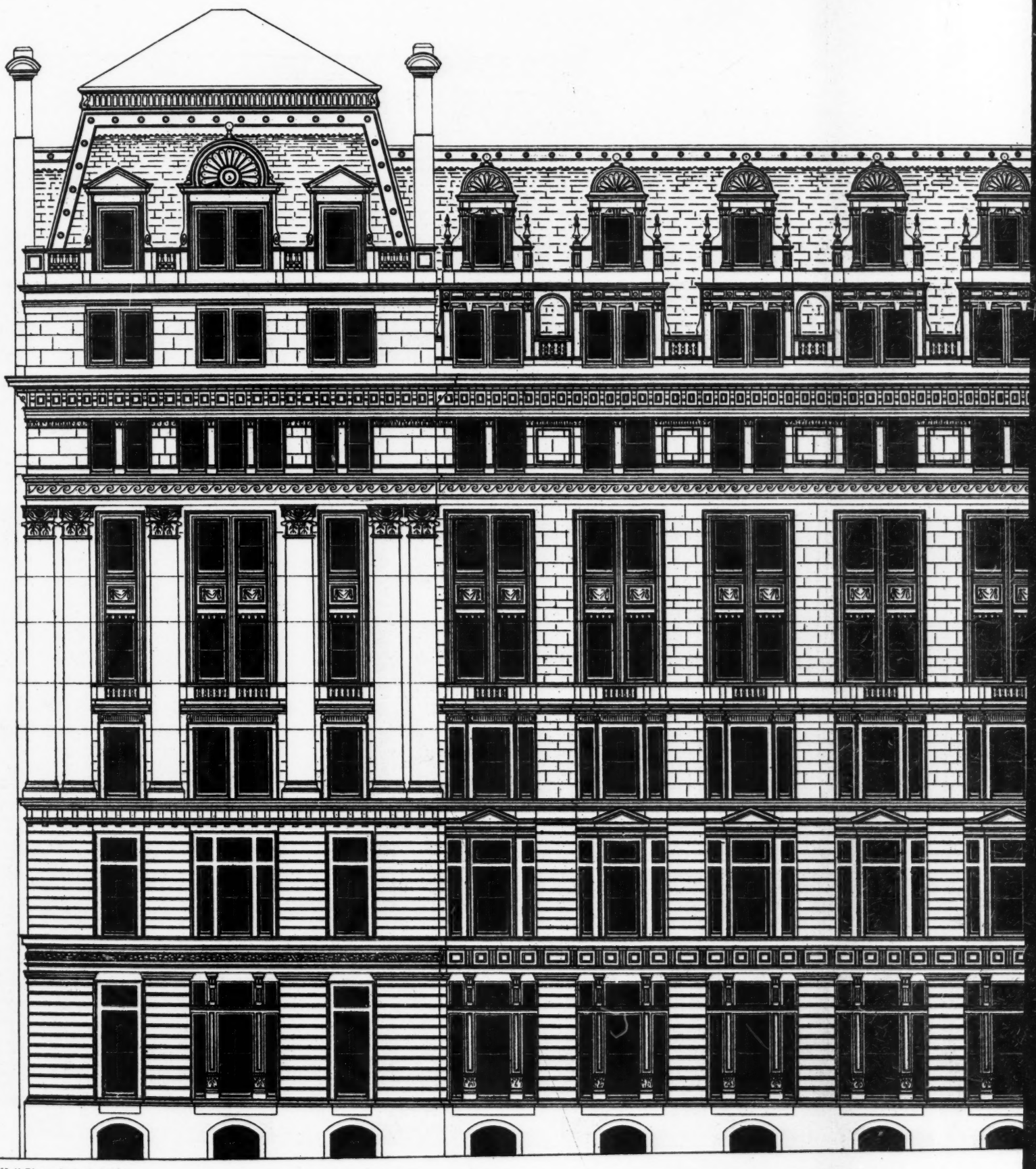


DETAIL OF BAY

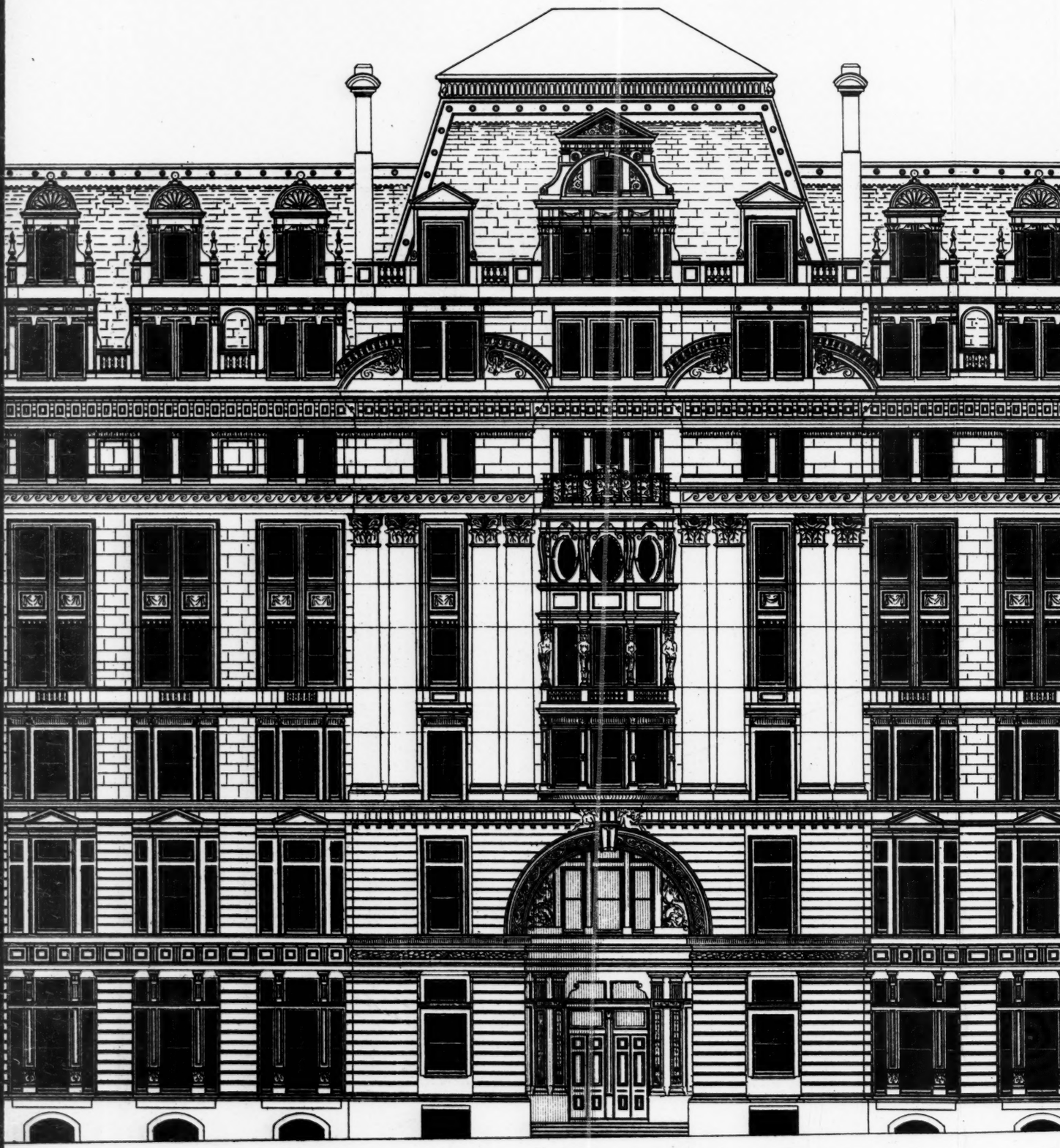
5 0 5 10 15 Feet

PHOTO-LITHO. SPRAGUE & Co. LONDON.

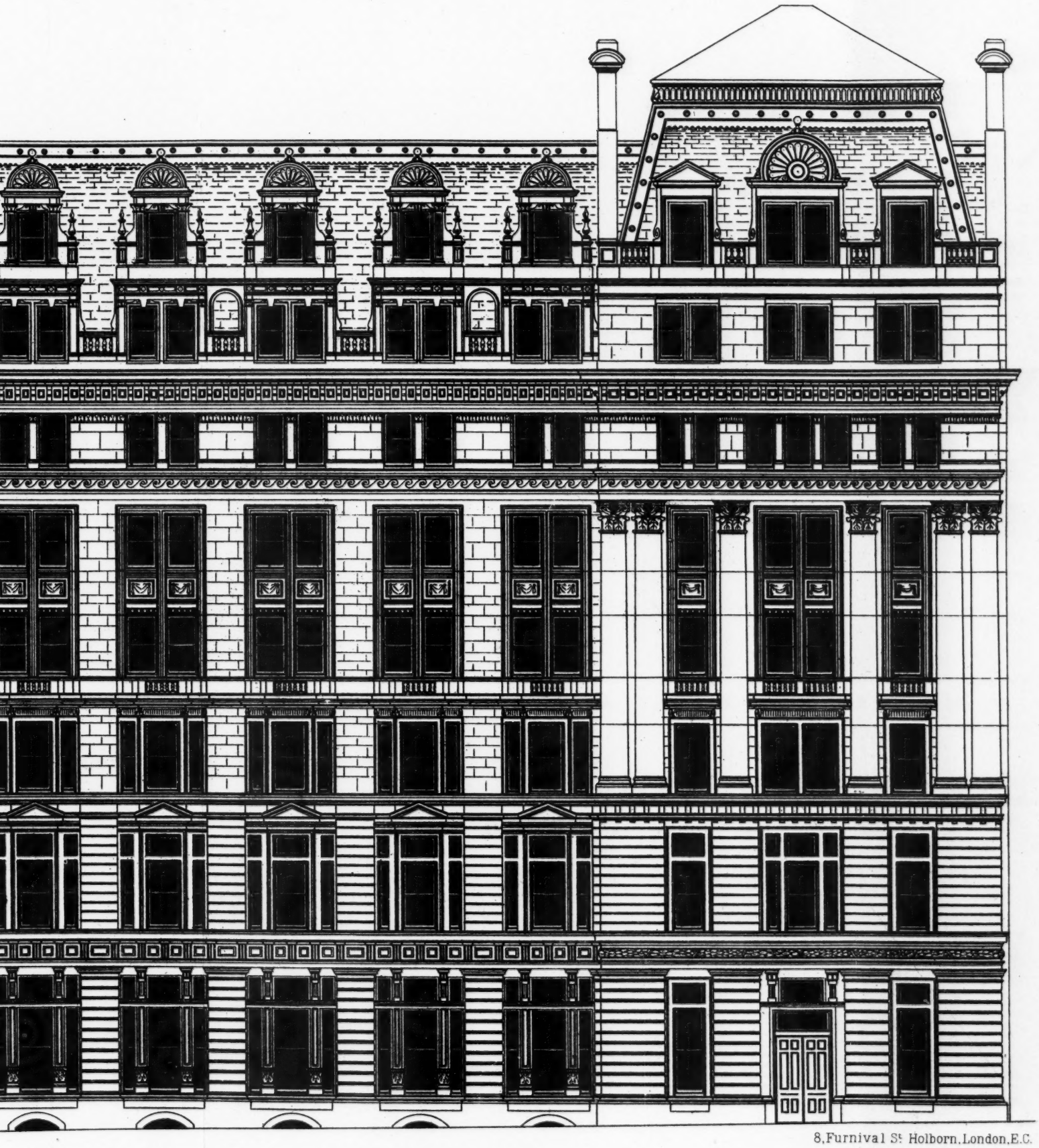
FIRST PREMIATED DESIGN FOR FULHAM VESTRY HALL.—MESSRS. NEWMAN AND NEWMAN, ARCHITECTS.



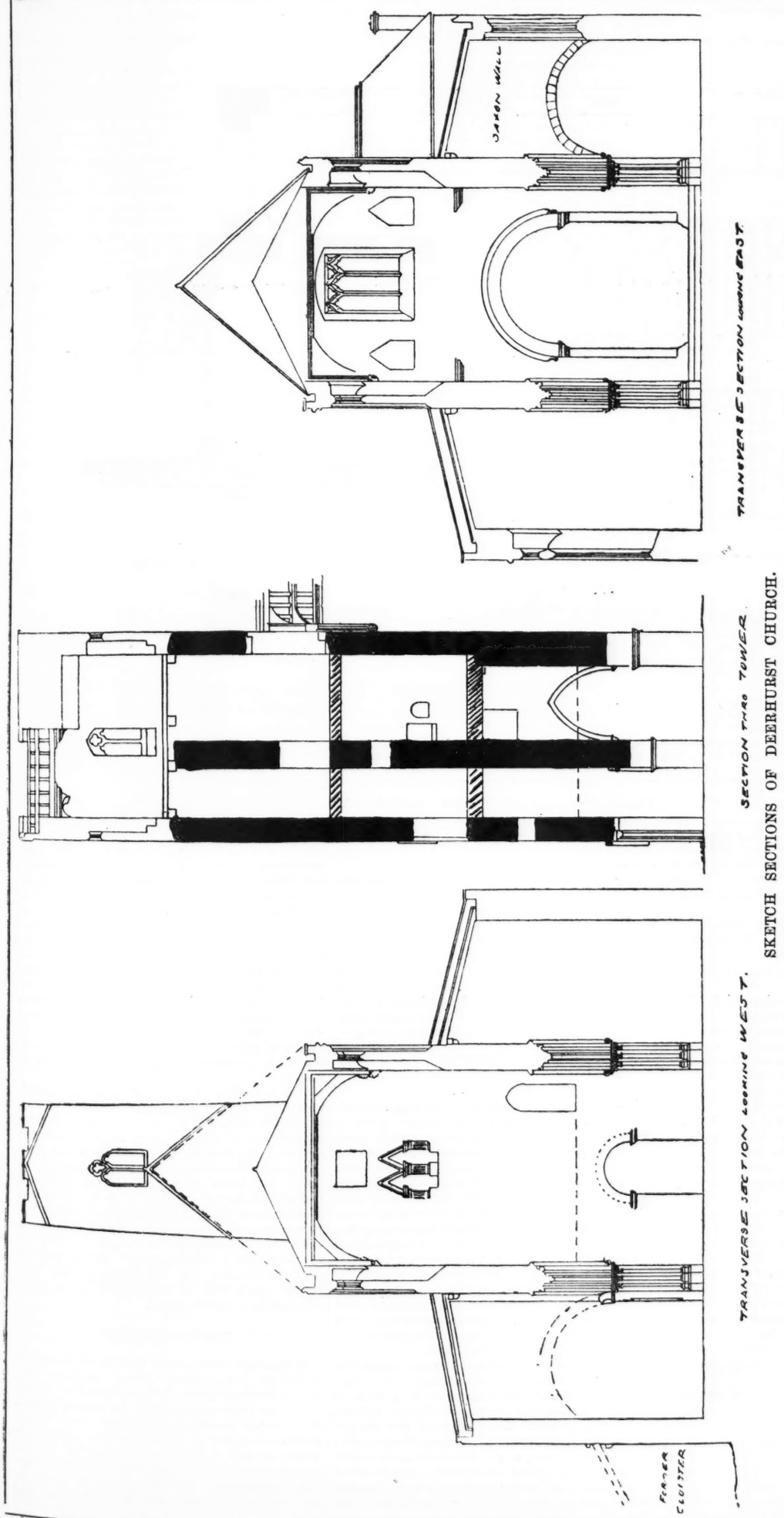
C F Kell Photo-Lith & Printer



THE NORTHUMBERLAND AVENUE HOTEL. MESSRS. ISAACS AND FLORENCE, ARCHITECTS.



8, Furnival St Holborn, London, E.C.



SKETCH SECTIONS OF DEERHURST CHURCH.

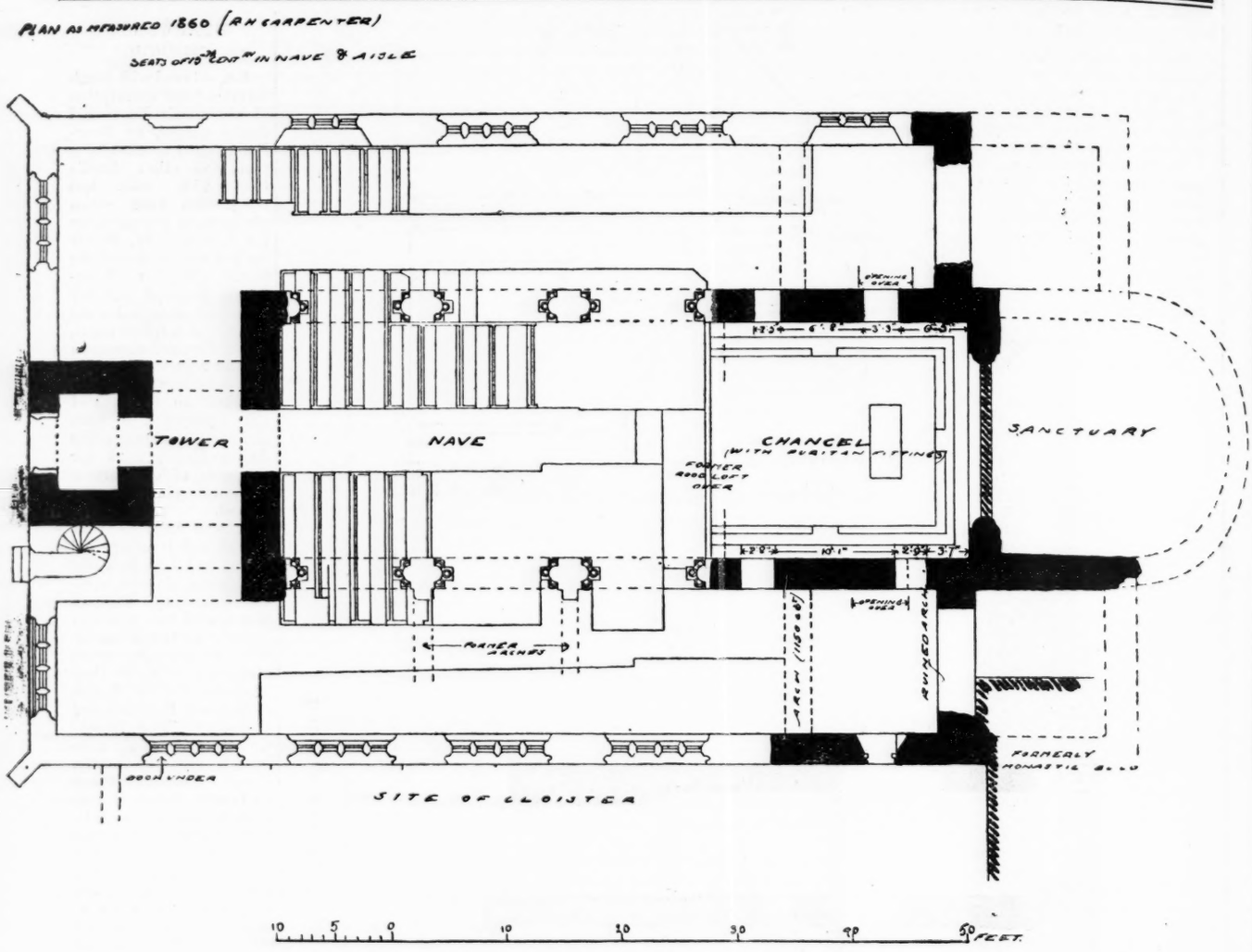
DEERHURST CHURCH.

SIR,—I read with much interest your description of the newly-discovered Saxon chapel, at Deerhurst, accompanied by a plan and other details [pp. 712, 819, last vol.]. In 1860, when plans were prepared by the late Mr. W. Slater for the restoration of the parish church of Deerhurst, situated not far from this chapel, I went down with a fellow pupil, Mr. S. Fry, and measured it, and afterwards made the drawings. I have referred to these, and have prepared a plan and sections showing the Anglo-Saxon work for purposes of comparison with the plans of the chapel.

It will be seen that this church is on a grand scale, and had in early days nave, chancel, apsidal sanctuary, western tower, and two aisles or chapels to the chancels. The proportions were also very lofty, as they are also in the Saxon churches of Bradford and Brigstock. The important question of the date is not easy to settle. Buckler is of opinion that as it now stands it was constructed about A.D. 1050, introducing features of earlier date; but the other theory commends itself more to my mind, viz., that "a restoration" only was carried out at that time, and that the lower part of the tower, and the nave and chancel and apse walls, are of an earlier date. I found in the course of the restoration of Brigstock Church that in the Saxon tower are numbers of burned stones irregularly placed, pointing to a restoration after burning by the Danes. The double window in the tower is, I believe (as does the Rev. C. Butterworth), *in situ*, and if, as Buckler thinks, the early church was low, this would have formerly been external.

There seems no doubt that the curious aisles or chapels belong to the early date, and Buckler thinks that formerly they extended eastward to the dotted lines. The doors are both pointed (like the tower windows) and flat-headed, and there is an arched opening each side above them into the chapels. The present arch in the south aisle is in the Saxon wall, and was an alteration of about 1150 A.D. There are remains of a ruined Saxon arch in the present east wall, and Buckler considers that the same place existed on the north side.

The Saxon chancel arch is removed, but evidences exist of its position. The sanctuary arch is well preserved, and was filled in when the apse was destroyed,



PLAN OF DEERHURST CHURCH.

—possibly the apse would be low, with windows over. The early church of Brixworth is a case in point, where the apse, with the sanctuary and chancel arch (or "arcus triumphalis"), all exist.

At Bradford and at Brigstock the chancel was narrower than the nave, proved at Brigstock by my finding the south-eastern quoin *in situ*. At Deerhurst they are equal in width, as at Brixworth.

The construction is an interesting point. The newly-discovered chapel has very fine narrowed angle quoins, as we find in most Saxon work, though they are not in the very regular "long and short" work, such as at Brigstock. The church, however, has the angles composed simply of small stones, like the walling stones, and one would infer an earlier date from this.

The existing clearstory walls are late in date, but there was evidently always a clearstory of great height, as indicated by the roof line in the tower and the windows in the east wall. The church at Bradford is an example of this Saxon lofty proportion.

The division of the tower into many floors and rooms would indicate that it was used for residence and defence, as that at Brigstock; it is likely a floor existed at the dotted line, and removed when the pointed arches were formed. The fourteenth-century finish to the tower is very peculiar. The Saxon tower being oblong in plan, the Mediæval architect arranged a square on it, with corbels for a spire, and covered the remaining space with a pointed barrel vault of stone, sloped on the outside with an eastern gable.

The plan shows the fifteenth-century seats which remained in 1860, and are now worked in to the new arrangement. It also shows the very singular Puritan arrangement of seats in the chancel, for receiving the holy communion sitting round the table. Mr. Slater retained this as a curiosity; but the eastern seats are not, of course, used. The others do duty for choir-seats. There was formerly a rood-screen, and the doorway to the loft still exists through the south wall.

The nave roof is a grand fifteenth-century one of elaborate detail, and the arcades are beautifully moulded, with carved capitals to the detached shafts.

I must acknowledge kind help given me in these notes by the vicar, the Rev. C. Butterworth. I have visited the church since the restoration when rowing down the Severn, which runs near its west end, but have not yet seen the interesting chapel recently discovered.

R. HERBERT CARPENTER.

DRY-ROT.

HERR GOTTGETREU, one of the leading German authorities upon building materials, gives a comprehensive summary of facts bearing upon the above question in a recent number of the *Centralblatt für Bauverwaltung*. He considers the question as one still to be solved, and suggests that the germs of the dry-rot may exist in the living tree, illustrating this supposition by quoting circumstances where apparently dry and sound wood was attacked. In Russia there are whole forests from which no building wood is now taken, experience having shown that it has always been attacked by dry-rot. A concentrated solution of common salt has often been found an efficient preservative, when applied to the beams in a boiling state. Airing with dry air has also been found efficacious.

In connexion with this subject the researches of Professor Poleck are of interest. He instituted a series of experiments with a view of testing whether the germs of dry-rot become developed in wood felled during the winter. From three trees felled in January (fir and pine) sections were taken on March 31st, in which were sown the germs of dry-rot. The sections were kept in covered vessels in a dark chamber at an average temperature of about 59° Fahr. The characteristic mycele of the dry-rot became visible during July and August in the three specimens. The wood of the previous winter had been found unsuitable for such experiments, although they succeeded with wood of the winter in question. A careful analysis of the wood showed that there was from 4 to 9 per cent. more potassium and phosphoric acid in the wood of the later season than in that of the previous one. The wood where the experiments had failed was supposed to have been floated wood, and experiments were consequently begun for the purpose of determining whether wood felled in the summer could be rendered safe against dry-rot by the removal of the bark, protracted drying, and steeping in water.

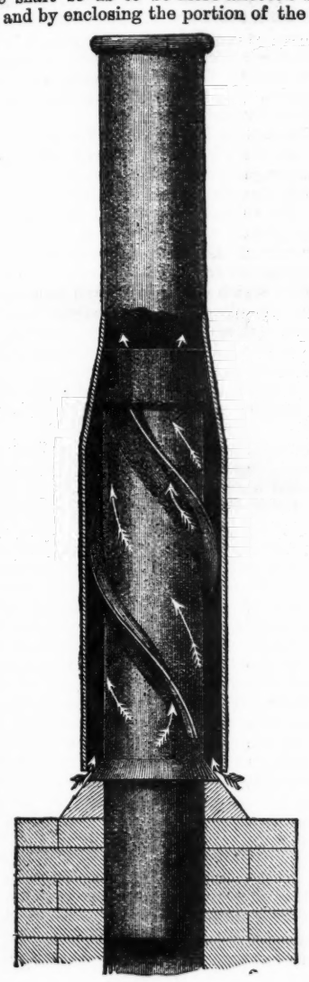
The *Industrie Blätter* refers to the experiments made with progressive success by Professor Farsky, of Tabor (Bohemia), in the application of salicylic acid as a remedy for dry-rot. At first he had used it in dry form (probably, therefore, in combination with some base), but since discovered that a solution of 5–28ths oz. salicylic acid in ·22 gallon of alcohol, if afterwards diluted, was sufficiently efficacious to protect a flooring of 800 square feet from the spread of dry-rot, and to remove it from the places where it had appeared. Rough salicylic acid can be used, and the action of this antiseptic agent can be heightened by a slight admixture of carbolic acid.

Obituary.—We record with much regret the death of a promising young engineer, Mr. Edwin Southey Beale, at the early age of twenty-four, and after a very short and sudden illness. Mr. Beale contributed several very useful articles on some of the important engineering works of the day to our columns, on various occasions, which showed very full and accurate knowledge, for so young a man, on the subjects he specially undertook to deal with.

THE ATMOSPHERIC COWL COMPANY'S EXHAUST VENTILATOR.

THIS ventilator differs from an immense number of exhaust or updraught ventilators that have been made in not depending entirely on the action of wind (though that assists it), but on the difference between the temperatures within and without the apartment to be ventilated.

The ventilating-shaft on which the exhaust is placed contains air warmer, and therefore relatively lighter, than the outer air of the surrounding atmosphere, and this is turned to advantage in the ventilator under our notice by providing continuous slits at the angle of a spiral worm (projecting slightly in the interior of the shaft so as to be more affected by the heat) and by enclosing the portion of the shaft



SECTION.

PLAN.

furnished with the spiral worm in a jacket open at the bottom, so that the external air forces its way in at the bottom of the jacket to supply, through the slits, the partial vacuum in the shaft, and, coming in contact with the comparatively warm metal, expands and rises in the jacket, entering the slits with greater force in consequence, and giving the effect of a continuous jet into the interior.

Care is taken to give a special direction to the incoming jets of air, so that they pass one another near the centre of the shaft (as shown in the plan), and communicate to its contents a rotary ascensional motion, whereby the draught is quickened, and the vitiated and heated air extracted in greater proportion than the mere difference of temperature between the shaft and the outer air would effect. This is, therefore, theoretically at all events, an automatic exhaust, calculated to draw more rapidly the higher the temperature rises in the room to be ventilated.

Where the ventilator is exposed to the heat of the sun, the bottom of the jacket is to be closed, and a special supply of cold air is to be led into it by a pipe from a cellar or other cold-air reservoir. This is ingenious, but we should rather doubt the exhaust having as efficient action under these circumstances as when the normal temperature of the outer air is low. In fact, it would appear that the ventilator would have to be altered for hot or cold weather, so that to this extent it would be affected by varying temperature in the air, like other exhaust cowls.

It has the merit of being a small and unobtrusive-looking thing, without anything like the large and variously-shaped cowls which are to be seen on exhausts intended to act solely by wind force; and the idea is certainly ingenious and scientific so far as its action in direct relation to the heat of the apartment is concerned. As an assistance to the draught of a chimney, and a safeguard against down-draught, it ought always to be efficient, on its principles; and we have found it so on actual experiment. As an exhaust from a room, apart from the chimney-shaft, it would not be equally effective, we surmise, in all states of the weather; but it would be, or should be, superior to those exhausts which are actuated by wind-currents only.

WATER SUPPLY.

Leamington.—The Local Government Board have given their consent to the borrowing, by the Leamington Town Council, of 1,600*l.* for the extension of the water-mains and the driving of the adit in the new artesian well.

Stafford.—At the meeting of the Stafford Town Council on the 20th ult., Mr. J. C. Mycock moved "that the sanction of the Local Government Board be asked for the raising of a loan of 4,500*l.* to cover the outlay on the pumping shaft or well at Enson Moor, in carrying out the agreement entered into with Lord Harrowby, and for defraying the estimated cost of the proposed experimental boring from the bottom of the pumping-shaft." The Mayor seconded the motion, which was unanimously carried, the Town Clerk stating, in the course of the discussion, that, assuming water was found successfully, another 15,000*l.* beyond the amount already expended or sanctioned, would complete everything. That was altogether 35,000*l.*, and that meant practically a little over 30s. a head for the population of the borough and the fringe round it to be supplied. Statistics as relating to other towns showed that a water supply had seldom, if ever, been got at a lower rate.

STONE FOR THE NEW GOVERNMENT OFFICES.

SIR,—I do not know whether you will agree with me that the answer of the Government to the Member for the Forest of Dean, that the only reason for rejecting the stone he inquired about was that the colour is unsatisfactory, is not much to the point. In my own opinion, the answer was singular, if not absurd, as emanating from a practical department of the Government, the members of which are, of course, resident in London, and must, therefore, know from ocular demonstration and every-day experience that the natural colour of all freestones is changed immediately in the sooty and noxious atmosphere of the metropolis. If the building of the new offices must wait till a freestone is discovered that will not change colour, they will never be built at all. As you have more than once allowed me to urge, a material exists possessing this important quality, and another even more important,—durability in London. Granite has yet another recommendation. It can be obtained in *all* colours that the architect can possibly require,—from white through yellow, red, green, gray, blue, black. And taking into account the excessive and rather discreditable expenditure upon the restoration of recently-built Government structures in London,—70,000*l.* in one case alone,—its adoption for the New Government Offices would not cost an extra 6d.

Yet although this material,—in great variety,—is in daily use, the Government has not the enterprise to adopt it on a grand scale, and for ever set at rest the simple question, Is it possible to erect permanent edifices in London?

ARCHÆUS.

STAIRCASE, ALBANY CAPITOL.

SIR,—Will you permit me to correct an unintentional error of statement which occurs in a note accompanying the drawing of Mr. H. H. Richardson's design for the grand stairway in the new Capitol at Albany, New York, which is published in the *Builder* for the 17th of April [p. 574]. It is there stated that because of political action on the part of Government authorities, Mr. Fuller, whose design was chosen in open competition, resigned, and Mr. Eidlitz and Mr. Richardson were selected to carry on his work. I believe that for once in America, politics entered not at all into the consideration. The facts are these:—In accordance with a long-established custom in the United States, the terms of the competition were such as to prevent nearly all American architects of established reputation from having anything whatever to do with it. As a result the drawings submitted were of little value. Doubtless the design chosen was the best. When the building had progressed as far as the tops of the third story windows, the money already expended exceeded by several hundred thousand pounds the estimates of the architect himself for the entire structure. Moreover, it was seen that when completed the building would be a positive artistic offence, even in the country which counts more vulgar pieces of architecture than any other pseudo-civilised community whatever. Therefore, both by reason of pecuniary and artistic considerations, the entire control of the work for the future was given to three of the most prominent of American architects, Mr. Richardson, Mr. Eidlitz, and Mr. Hunt.

No attempt was made by the new architects to harmonise the new and the old work; any compromise was artistically impossible. Therefore, the entire interior was reconstructed and the exterior completed in a style of extreme originality and beauty. Instead, therefore, of the new work seeming out of place, it is the remnant of first work that is offensive. Should the time ever come when the exterior work of the first and second stories is replaced by something nobler and purer, the building will be a most harmonious and beautiful piece of design, although Mr. Eidlitz and Mr. Richardson were so handicapped at the start.

The original design may have been "Italian Renaissance," but in America we call it "American Renaissance," or "Builder's Classic." There is no English work with which it may be compared. The designs executed by Mr. Richardson and Mr. Eidlitz are Byzantine Romanesque, and a very rich round-arched Gothic, remarkably effective and of unusual originality.

RALPH ADAMS CRAIN.

ANCIENT GREEK SCULPTORS.

SIR,—In last week's issue of your paper, under the head of "Recent Excavations in Bœotia," p. 603, you state, in reference to an incomplete inscription on a fragment of a xoanon, that "literary record gives us no sculptor's name ending in '*ορος*' to supply the deficiency."

On p. 601 in the same issue, referring to a colossal statue found at Gortyna at Crete, you state that "the great interest of it lies in the fact that it is inscribed with the name of the sculptor, "*Εισίδοτος Αθηναῖος ἐποίει.*" This seems to me to furnish the very clue which you require.

CHARLES G. CRESSWELL.

*** The first quoted remark referred to sculptors of the archaic period, of the Bœotian territory, and, therefore, likely to use Bœotian characters. Eisidotos, especially with his affix, *Αθηναῖος*, could not come under this category. There are several known sculptors of the classical period whose names end in "*ορος*." It was not, we admit, put quite as clearly as it should have been.

STONE-SAWING MACHINERY.

SIR,—I see in your issue of the 24th ult., p. 624, a letter from E. P. Bastin & Co., stating they are makers of side lever saw-frames, but they omitted to state that they were using my patent under a royalty from me.

With regard to the statement of Mr. Powis Bale that side lever machines were used in Belgium years before my patent came out, that I question; or why was not my specification challenged when I brought it out in 1874, or when I renewed it in 1881?

RICHARD COX.

Park Foundry, Weymouth.

SIR,—My letter to you of the 10th ult. [p. 593, *ante*] will not bear the construction which Mr. Powis Bale puts upon it. I should be the last person to advocate "sitting at home." In the course of my business it has been my lot to travel through Belgium, France, and Italy, and I have spent many months in the examination of the manner in which marble and stone are sawn and worked in these countries. I do not know who are the manufacturers of the machines which Mr. Bale mentions, but I do know that the description of them given by Mr. Bale himself exactly answers the description of the machines made by Mr. Cox under his patent. If they are not

the same, will Mr. Bale tell us in what the difference consists? In his description of the Belgian machines, he says they are driven "by a crank attached to a countershaft in the usual manner; but in place of the connecting-rod being attached to the end of the saw-frame a pair of side levers are arranged to take hold of the frame at about the centre on either side, thus giving a longer connecting-rod, and increased steadiness in working." The conclusion which will be naturally drawn from such a statement is that this principle is peculiar to the Belgian machines. This is not the case, and in justice to our own manufacturers it should be so stated. If I have misunderstood Mr. Bale's description, I should be exceedingly glad to be put right. I can assure him that English manufacturers are only too anxious to learn from any source open to them.

ARTHUR LEE.

ROBINSON'S CEMENT.

SIR,—With reference to the letter from Messrs. John Howe & Co. (plaster makers) on the above subject, which appeared in your columns on the 23rd inst. [p. 624], we are not disposed, for obvious reasons, to give them any further information than that which they have already obtained or can obtain from the patent. We also decline to be drawn into a correspondence on the subject, but take this opportunity of stating that if they or anybody else do manufacture or sell "Robinson's Cement," or an article identical with "Robinson's Cement," they infringe our patent, and do so at their risk. JOSEPH ROBINSON & CO.

Knothill Cement Works, Carlisle,
April 28.

"HASKELL *v.* BRADBEER."

SIR,—My attention has been called to the excellent report of the trial of this action in your paper of the 24th ult. [p. 624]. There is, however, one little error which perhaps you will kindly allow me to correct, *i.e.*, the name of the learned counsel who appeared for my client, the plaintiff, was "Willes," and not "Wills." F. A. WHITMORE LOWE.

The Student's Column.

OUR BUILDING STONES.—VIII.

THE PREPARATION OF MICROSCOPIC SECTIONS OF STONE.

AS before mentioned, in order to examine stones with the microscope it is necessary that they should be ground down until they are transparent. As so much depends on the proper treatment of sections, considerable care and delicacy of manipulation must be bestowed on them. If the section is not uniformly ground,—one part of it being thicker than another,—or not reduced thin enough, the accuracy of determination is much impaired.

It is not so difficult to cut and grind sections of granite, and such hard rocks used in building, thin enough for the purpose, as they are so compact. But with some sandstones and limestones it is quite another thing. Many fairly durable building-stones are not so compact as to enable sections to be made thin enough by the ordinary method, for examination. Just as the final stages are being completed, they frequently break up and go to powder. We shall point out, however, how these refractory stones are to be dealt with, in order that they may be successfully investigated.

The method of preparing thin slices of rock for the microscope is well explained by Messrs. A. Geikie * and F. Rutley. †

The preparation of a great number of sections for the purposes of these articles, however, enables us to see that the special circumstances of the case require a somewhat different method from that usually practised.

No very costly or unwieldy set of apparatus need be procured, every appliance used being of the simplest character.

The first thing to do is to select the usual average piece of stone, which is to be ground down. A dexterous blow with a hammer should sever a thin chip from it. If the stone is very hard, this chip should be as thin as possible, as it saves a great deal of work in grinding; but if, on the contrary, it should not be very compact, a piece not less than ¼ in. in thickness, should be struck off, as thinner pieces are liable to be fractured internally. Much trouble might be saved if the stone be taken to a lapidary, who, for a penny or two per section, is willing to slice it with his machine. This produces two even surfaces on the thin piece to be ground, besides making it of a uniform thickness. The following is a list of the apparatus required in the grinding and finishing:—

1. Two zinc plates ¼ in. thick, 10 in. square. Iron is sometimes recommended, but we prefer zinc because it does not rust. One zinc plate is used for coarse emery, the other for flour emery. It is particularly necessary to keep these plates apart from each other, as, if any of the coarse emery finds its way to the flour plate, the section on being rubbed on the latter will be cut to pieces.

2. A Water of Ayr stone, 5 in. square 1½ in. thick. The sides of the stone should be painted with oil colour to keep the wet out, and so prevent the stone from rotting. Water of Ayr stones 6 in. long by 2½ in. broad are generally used, but the fact that they soon become worn by the rubbing process into hollow surfaces is a sufficient reason for using a larger stone where the rotary motion causes it to wear away more evenly.

3. Emery powder for rough grinding. That known as No. 60 is very suitable.

4. Flour emery.

5. Canada balsam. This is often used for fixing the specimen whilst grinding as well as finally mounting it, but for the former process we have found a *shellac cement* more useful. This cement is made of about ½ lb. shellac to ¼ lb. Venetian turpentine. Put the shellac in an earthenware pot and place it in an oven. When about half melted, add the Venetian turpentine and mix both together. It may be stirred with a stiff wire, with a loop at one end. When sufficiently mixed, pull the wire out and when cool enough, catch hold of the cement adhering to it and roll the cement between the hands into a stick, like sealing-wax.

6. Two American wooden paper clips, forceps, and some needles. One of these last should be stout and strong.

7. Some pieces of thick glass, 1½ in. or 2 in. square.

8. Glasses with ground edges, 3 by 1 in., may be obtained of almost any optician. They are for finally mounting the ground slices upon.

9. Thin covering glasses, shape immaterial. Square ones are cheapest.

10. ½ oz. oil of cloves, and a small bottle of spirits of wine.

11. A small spirit-lamp, and a nest of small saucers.

a. The first part of the process is to grind the chip of stone *flat* on one side, rubbing it on one of the zinc plates with emery powder (3). Then wash the chip in water, taking care that all the emery is removed. Next, grind the same side of the chip with flour emery on the other zinc plate, which should remove the rough scratches made with the emery powder. Wash it again. By this time the piece of stone should be quite smooth on one side.

b. Then polish it on the Water of Ayr stone, using a little water. Wash again. It will be found that many soft sandstones and limestones will not polish well. This does not particularly matter, but in all cases they should be ground as smooth as possible.

c. The polished side should now be fixed to one of the pieces of thick glass mentioned (7). This is done by clasping the glass with one of the paper clips (6), and holding it over the lighted spirit-lamp (11), gently moving it to and fro, until it is warm. A stick of shellac (5) should then be rubbed on the warm glass, when it will be found to melt. As the shellac melts, a rotary motion is applied to get an even surface, and distribute it fairly over the centre of the piece of glass.

d. The smooth side of the chip should then be warmed a little, and placed on the piece of glass with the shellac. A paper clip may be used at this stage to press the chip firmly on the glass, and care should be taken to see that the part of the shellac which cements it is equally distributed. Throughout the whole of this part of the process, the glass with the chip affixed should be *slightly* warmed, and if any air-bubbles appear,—as they very often do,—the chip should be moved about until they disappear.

When a few minutes have elapsed, and the one side of the chip is firmly cemented to the glass, the other side should be ground down in exactly the same manner as described in *a*, *b*. This time, however the chip requires more watching, to see that the stone is being evenly ground, no one part being thicker than another. It must be remembered that the object is to be made as thin and transparent as possible. Some hard stones may be reduced to as thin as, if not thinner than, a sheet of tissue paper; but if others are attempted to be so finely ground as before stated, they go to pieces. No rule can be laid down as to what the actual thickness of each chip should be: nothing but a little experience can determine it.

Heat should now be applied to the glass, and the shellac cement re-melted, the object being to remove the chip from the glass. This may be done by gradually sliding it off the edge, with the stout needle, but great care must be exercised, or the slender piece of stone will break. The slice of rock is now gently placed in some spirit (10) in a small saucer (11), and allowed to remain some hours. It should then be taken out with a small brush, and placed in a saucer with some fresh spirit, where it may remain some hours. Take it out again, and place it in a saucer, with a little oil of cloves (10), keeping it there five minutes only.

The section is now ready for the final mounting on the glass with ground edges (8). One of these pieces of glass should be cleaned, and a little Canada balsam dropped on the centre of it. The thin section should then be very carefully placed on the balsam, and under the influence of the heat of the spirit-lamp, moved gently about to ensure the removal of any air-bubbles which may appear, and to firmly cement it to the glass. A little balsam may then be drawn with a needle over the section, and one of the thin glass coverings (9) carefully fixed, to prevent dust from spoiling it.

A label is afterwards affixed to the slide, with the name of the stone, quarry, and bed written on it.

As before stated, many stones used in building are very soft. Sections of them cannot be handled about in the manner just described. We treat them partly by the method recommended by Mr. E. T. Newton, F.G.S.* First rub the chip on an ordinary grindstone, and polish as well as possible with the Water of Ayr stone. It should afterwards be soaked in a solution of shellac in spirits of wine. It absorbs this mixture, and, when dried, becomes very hard. It is then cemented with the best marine glue to a piece of thin glass, with ground edges (used in the final stages of the last method). The other side must then be ground in a similar manner, and the section reduced to the required thickness. In consequence of the soft nature of the stone it should not be removed from the glass. This latter will most likely be scratched in the grinding process, and look a little unsightly, but beauty must in this instance be sacrificed to utility.

Instead of fixing one of the thin glass coverings on the section at the final stage, as before, the best plan is to put it away in a place where the dust will not get at it. To fix the glass covering heat must be applied, consequently, unless extreme care is taken, the section will be spoiled by falling to pieces.

All this may seem rather tedious, but it is astonishing how practice facilitates the operation. A good plan is to have several pieces of stone ready at each stage of the process. For instance, a few hours may be employed in grinding several, as described in *a* and *b*. The whole of the pieces are then ready for *c*, and so on. In this way, twelve sections can be cut, ground, and mounted in about the same time as four or five done separately.

* "Outlines of Field Geology," 1882, pp. 202-211; and "Text-book of Geology," 1883, pp. 182-187.

† "The Study of Rocks," 1884, pp. 59-74.

RECENT PATENTS.

ABSTRACTS OF SPECIFICATIONS.

17,011, Conduits for Underground Wires. J. B. Pase.

These conduits are constructed of glazed earthenware in sections, and coated internally with paraffin oil and shellac. The sections fit together with spigot and socket joints, and have longitudinal lids; sockets are provided to receive pipes to carry branches from the mains. Drainage wells are provided in suitable positions. These may also be used as testing-boxes. The conduits are about two-thirds filled with conductors, the remaining portion being left for ventilation produced by the air being drawn through an enclosed fire at the base of a suitably enclosed shaft.

16,893, Furnace Bricks and Concrete Walls. J. Gillespie.

These bricks or their outer faces only are of fireclay, and for the purpose of affording a hold for gannister or other silicious lining, they are formed with projecting pins or ridges, which may be either

* See Rutley, *op. cit.*, p. 71.

solid with the brick, or made separately and afterwards inserted. In the latter case, when the ridges are longitudinal, they take the form of tiles inserted in grooves; this may be modified by letting the tiles in between the bricks instead of into a groove, rebates being formed so that the tile enters half into each brick; or the rebate may be dispensed with, and the tiles extend entirely through the joint. In place of the projecting pieces, holes in the bricks may be employed to effect the same object. These holes may be extended right through, and the bricks then by using only one hole are caused to take the form of tubes. Linings built of these tubes in connexion with tiles, consist of a skeleton, which is filled in with the plastic lining. This use of hollow bricks is also applicable to the building of concrete walls.

16,111, Door Locks. J. Edwards.

The tumblers of the lock engage with a pin upon a longitudinal slot. In the act of locking an extension of the tumbler passes over the keyhole and prevents the insertion of any pointed instrument for the purpose of picking the lock.

NEW APPLICATIONS FOR PATENTS.

April 16.—5,286, E. Staples, Attaching Door Knobs to Spindles.—5,316, W. Allen, Syphon for Self-flushing Water-closets.—5,317, W. Wesley and J. Peers, Ventilators.—5,321, M. Hussey, Roofing Tiles, &c.—5,324, G. Oulton, Syphon Flushing Cisterns.—5,345, G. Johnson, Machines for Making Tongue and Groove Flooring.

April 17.—5,351, R. Bradshaw, Carrying off Table for Brick Machines, &c.—5,371, J. Macmeikan, Inlet Ventilators.—5,387, A. Seefils, Rendering Wood, &c., Fireproof.

April 19.—5,391, W. Baldwin, Waste Preventing Syphon Cistern.—5,408, W. Green, Lifts and Hoists.—5,438, J. Lorrain, Chimney Flues, &c.

April 20.—5,442, J. Stacey, Turning Newels, Balusters, &c.—5,454, C. Meyer, Combined Wardrobe, Bookcase, and Secretaire.—5,487, J. Pfliging, Leads for Stained Glass.

April 21.—5,504, G. Newman, Sash or Window Fastener.—5,513, W. Walker, Cooking-ranges.—5,516, W. White, Paving Blocks.

April 22.—5,553, J. Dyson, Cowls, Chimney-tops, &c.—5,556, J. Smith, Stoves, Firegrates, &c.—5,574, H. Glendining, Springless Locks and Latches.—5,581, R. Rastrick and G. Hughes, Mitreing and Templeting Machine.

PROVISIONAL SPECIFICATIONS ACCEPTED.

3,259, H. Penrice, Rock Tunnelling Machinery.—3,420, S. Jarvis, Bastic Bricks.—3,421, S. Jarvis, Bastic Bricks.—3,480, G. Newman, Pneumatic Door Springs and Checks.—3,544, J. & J. Mason, Hanging Window-sashes.—3,569, J. Dyson, Wall Bonds or Bricks for Damp Walls.—3,597, J. Lawson, Self-acting Water-closet.—3,626, W. Berridge, Water-closets, Urinals, &c.—3,694, H. Pennell, Window Fastening.—3,874, T. Ford, Suspended Hydraulic Differential Power Lifts.—4,153, T. & J. Holt, Flushing Apparatus for Water-closets, &c.—4,435, W. Rowe, Plough and Sash Fillister Plane.—3,354, C. Price, Sash-fasteners.—3,944, T. Humpage and E. Shaw, Screws.—3,961, S. Franklinberg, Cement for Mosaic Work, Wood Paving, &c.—4,288, J. Walker and H. Worsey, Sash Casement and Door Fasteners.—4,361, J. Walker, Door Knobs, &c.—4,439, J. Sharp, Chimney Cowl and Ventilator.—4,482, C. Wharton, Automatic Window-sash Fastener.—4,603, J. Rawlings, Bench Plugs and Cams.

COMPLETE SPECIFICATIONS ACCEPTED.

Open to opposition for two months.

7,208, A. Hogg, Adjusting and Attaching Door Knobs to Spindles.—7,483, J. Hamond, Mortising Machines.—7,748, T. Worthington, Imitating Wood, Marble, &c., on Painted Surfaces.—7,834, J. Osmond, Door Fastening.—8,094, G. Andrews, Balance for Hydraulic Lifts.—8,138, H. Williams, Window-sash Fastener.—8,254, W. Shorland, Weather Board and Draught Excluder.—13,247, H. Headland, Chimney Pot.—1,912, G. Woolliscroft and T. Freeman, Tiles.—3,283, S. Mower and T. Fowler, Machines for Making Saws.—3,459, J. Plenty, Glazed Structures and Skylights.—8,364, J. Matthew, Producing a Glazed Surface on Stone.—10,514, E. Wood, Ventilators.—3,665, H. Allison, Floor and Wall Covering.

RECENT SALES OF PROPERTY.

ESTATE EXCHANGE REPORT.

APRIL 19.

By DYER, SON, & HILTON.

Eltham, High-street—Torrington Lodge and Meadow View, freehold £3,750

By REYNOLDS & EASON.

Walthamstow—2, 3, and 4, Hope Cottages, freehold 410

Clapham—Loats-road—Holly Lodge, 22 years, ground-rent 2*l.* 545

Kingsland—38, 40, and 42, Hows-street, 19 years, ground-rent 6*l.* 510

Kentish Town—2 and 3, Lewis-street, 49 years, ground-rent 9*l.* 490

By RICHARDSON & BOOTH.

Greenwich—4, Lorne-terrace, 78 years, ground-rent 4*l.* 8*s.* 220

APRIL 20.

By TOPLIS & HARDING.

Bethnal Green-road—Nos. 120 to 126 even, and 1, George-street, 70 years, ground-rent 65*l.* 810

By MASTERMAN, EVANS, & CO.

Wanstead—The Elephant and Castle Beer-house, copyhold £470

By A. WATSON.

Dulwich—6, Elsie-road, 86 years, ground-rent 7*l.* 5*s.* 340

By WOOD & SPINK.

Brixton—48 and 60, Arlingford-road, 88 years, ground-rent 17*l.* 490

By R. J. COLLIER.

Poplar—1a, Newby-place, freehold 275

By COLLETT & COLLETT.

Notting Hill—70, Bevington-road, 80 years, ground-rent 7*l.* 350

By DRIVER & CO.

Claygate, near Esher—A Plot of Freehold Land, 2a. 1r. 19p. 600

Egham, Surrey—Seven freehold houses 1,100

Wandsworth-road—Ground-rents of 6*l.* a year, reversion in 54 years 1,550

Slinfold, near Horsham—Gaskin's Farm, 58a. 0r. 12p. freehold 2,350

APRIL 21.

By D. J. CHATTELL.

Chislehurst—The Residence called Park View, freehold 2,220

By TOWERS, WILLIAMSON, & CO.

Notting Hill—13 and 14, Addison-road North, 54 years, ground-rent 20*l.* 14*s.* 960

Hyde Park—6, Connaught-street, 30 years, ground-rent 18*l.* 18*s* 1,360

By DALE & SON.

St. George's-in-East—67 and 69, Martha-street, 4 years, ground-rent 5*l.* 12*s.* 50

3, 9, and 11, Dean-street, 10 years, ground-rent 14*l.* 215

Mile End—51, Smith-street, 27 years, ground-rent 2*l.* 285

5, Patterson-street, 14 years, ground-rent 4*l.* 140

Bethnal Green—30, Pedley-street, 70 years, ground-rent 7*l.* 10*s.* 260

St. George's-in-East—34, Cable-street, freehold 550

Limehouse—34, 36, and 38, Turner's-road, 78 years, ground-rent 13*l.* 10*s* 730

Poplar—9, Rigden-street, freehold 270

23, Rook-street, freehold 105

25, Tetley-street, freehold 210

Bromley—15, Whitethorn-street, freehold 140

22, 24, and 26, Whitethorn-street, freehold 515

MEETINGS.

SATURDAY, MAY 1.

Association of Public Sanitary Inspectors.—Address by Mr. Edwin Chadwick, C.B., President. 6·30 p.m.

St. Paul's Ecclesiological Society.—Visit to the Church of West Ham. 3·45 p.m.

MONDAY, MAY 3.

Royal Institute of British Architects.—Annual General Meeting. 8 p.m.

Surveyors' Institution.—Professor W. Fream on "The Geology of the Surface in its Practical Aspects." 8 p.m.

Society of Engineers.—Mr. W. A. Martin on "Induced *versus* Forced Draught for Marine Boilers." 7·30 p.m.

Clerks of Works' Association.—Mr. J. R. Cruickshank on "The Decoration of Public Buildings." 8 p.m.

Inventors' Institute.—8 p.m.

Victoria Institute.—8 p.m.

Society of Chemical Industry (*London Section*)—(1) Mr. A. G. Salamon on "The Purification of Water." (2) Messrs. Macnab and Beckett on "The Treatment of Water for Technical Purposes." 8 p.m.

Society of Antiquaries of Scotland.—Mr. J. Romilly Allen on "Early Christian Symbolism in Great Britain and Ireland" (Rhind Lectures in Archæology), Masonic Hall, Edinburgh. 4 p.m.

TUESDAY, MAY 4.

Art Union of London.—Annual Meeting and Distribution, Adelphi Theatre. 11·45 a.m.

Institution of Civil Engineers.—(1) Mr. Francis Fox on "The Mersey Railway." (2) Mr. W. E. Rich on "The Hydraulic Passenger-Lifts at the Underground Stations of the Mersey Railway." 8 p.m.

Society of Antiquaries.—Anniversary Meeting. 2 p.m.

Society of Biblical Archæology.—8 p.m.

Society of Arts (*Special Lectures*).—Mr. Ernest Hart on "Japanese Art Work."—I. 8 p.m.

WEDNESDAY, MAY 5.

Society of Arts.—Adjourned Discussion on Dr. C. Meymott Tidy's paper on "The Treatment of Sewage." 8 p.m.

British Archæological Association.—Annual Meeting. 4·30 p.m.

Civil and Mechanical Engineers' Society.—Annual General Meeting. 7 p.m.

Builders' Foremen and Clerks of Works' Institution.—Ordinary Meeting. 8·30 p.m.

Society of Antiquaries of Scotland.—Mr. J. Romilly on "Early Christian Symbolism in Great Britain and Ireland." 4 p.m.

THURSDAY, MAY 6.

Royal Archæological Institute.—Mr. R. S. Poole on "The Value of Archæology in the Study of the Bible." 4 p.m.

Society for the Encouragement of the Fine Arts.—*Conversazione* at the Galleries of the Institute of Painters in Water Colours. 8 p.m.

Institution of Mechanical Engineers.—General Meeting. 7·30 p.m.

FRIDAY, MAY 7.

Architectural Association.—Mr. W. J. N. Millard on "Architectural Training." 7·30 p.m.

University College.—Professor C. T. Newton, on "Greek Inscriptions."—I. 4 p.m.

Institution of Mechanical Engineers.—General Meeting continued. 3 p.m.

Lincoln Diocesan Architectural Society.—12·15 p.m.

SATURDAY, MAY 8.

Architectural Association.—Visit to the National Liberal Club, Victoria Embankment. 3 p.m.

Edinburgh Architectural Association.—Visits: (1) to Ancient Chapel, Church, and Rossend Castle, Burntisland. (2) to Sinclairtown Waxcloth and Linoleum Works.

Miscellanea.

Plumbers' Company.—The Ordinances of this Company, dating from A.D. 1365, fix St. Mark's Day as the first quarterly meeting of the year. The observance of this Ordinance has continued unbroken since that date, and by reason of St. Mark's Day falling this year upon the Bank Holiday, arrangements had to be made for holding the meeting at the Guildhall Tavern, Gresham-street, which was opened specially for the purpose. The Court assembled at half-past three, Mr. George Shaw, C.C. (the Master), presiding, supported by Mr. Alderman Knill, Prime Warden; Mr. F. Machin, Renter Warden; Mr. W. Digby Seymour, Q.C.; Mr. Philip Wilkinson, Mr. Chas. Hudson, Mr. R. Cooke, Mr. W. H. Bishop, Members of the Court. Among the aged women admitted to the annual pension, and relieved by a grant of 5*l.* 5*s.*, was Charlotte Hardcastle, who produced the indentures of apprenticeship and freedom of her father, a Liveryman of the Company, dated 1765. It was reported to the Court that the registry for qualified plumbers, opened by the Company at the Guildhall on the 1st of March, was very generally approved, not only by the plumbers of the London district, but that plumbers (both masters and journeymen) in various parts of England and Wales, as well as Scotland and Ireland, had applied to be admitted to the London Register pending the establishment of offices of registry in the provinces. The quarterly returns of the United Operative Plumbers' Association of Great Britain and Ireland (numbering 3,000 plumbers in various parts of the kingdom) were submitted to the Court, with a communication from Mr. Geo. B. Cherry, the General Secretary (Sheffield), expressing the satisfaction of the Executive Council of the Association with the system of registration established by the Plumbers' Company.

The Resistance of Building Stone to Frost.—Herr Frangenheim (in the *Deutsche Bauzeitung*) remarks that most books upon tests of building materials recommend the glauber-salt process for arriving at the resistance of building stones to frost. He disputes, however, the analogy between a test applied to a sample of stone and the actual effect of frost upon large stones exposed to humidity, and with surfaces which have been more or less affected in their structure by dressing with various instruments. From Professor Tetmajer's investigations it would seem that contraction takes place during the crystallisation of glauber salt instead of extension, so that the value of this test has become much depreciated in technical circles. The Berlin testing station has tried the actual effects of frost by a comprehensive series of experiments, the results of which have been indicated by the loosening of the structure of the stone, as illustrated by diminished resistance to pressure. Herr Frangenheim considers, however, that further experiments are necessary before conclusions of definite value can be arrived at. His own investigations have led to the result that stone of acknowledged and tried durability has been injuriously affected by glauber salt, while inferior stone has not suffered. He considers that the tests hitherto made are not sufficient for arriving at a reliable opinion as to whether the structure or the composition of the various descriptions of stone experimented upon has led to the conclusions arrived at.

The Hunting Castle of the Empress of Austria.—This new structure, near Spessing, is described by the Vienna *Gewerbe Zeitung* as doing credit to the artistic skill of Baron Hasenauer, who has been entrusted with the work. The relative simplicity which characterises the other Imperial residences has in this instance given place to rich decoration, in which architecture, painting, and sculpture, have been fully employed. The road from the station of Spessing is illuminated by 115 electric lights. The castle stands on the site of a wood which had to be removed, the excavations being performed by the Union Building Association. Mannersdorf and Almas stone have been principally used. In the flooring of the entrance-hall polished white slabs of Belgian and Carrara marble have been employed.

Nineteenth Century Art Society.—Thursday, the 29th inst., has been appointed for the reception of works of art intended for the Summer Exhibition of this Society, at the Conduit-street Galleries.

British Archæological Association.—On Wednesday, April 21st, Mr. Thos. Morgan, F.S.A., in the chair, a series of ancient views of Rheims were exhibited by Mr. Loftus Brock, F.S.A., illustrative of the visit of the Leland Club to that city, which is to take place in course of the present week. These views indicate the aspect of many of the buildings which have since been demolished. Among these was the Church of St. Nicaise, an elegant building of the thirteenth century, of which a view of the west front was exhibited, while an ancient plan showed the positions of a singular group of churches close to it, also a similar group around the neighbouring Church of St. Remi. The division of the city into squares of unequal size appears to show the continuance of the plan of the Roman city to Mediæval times, similar in this respect to Gloucester and some other cities in England which were referred to. Mr. Romilly Allen, F.S.A. Scot., exhibited a remarkable powder-flask of horn illustrated with quaint subjects of most archaic design, representing scenes of New Testament history. The workmanship is Scandinavian, and the date that of the seventeenth century, showing a singular survival of older forms. A paper was read by the Chairman on Haslemere and its locality, and another by Mr. J. T. Irvine, on the Saxon Tower of Barnack Church, the architectural features being described in detail. The meagre historical evidences were referred to, and a late Saxon date was assigned to the work, the tower having been added probably to an older wooden church, an opinion which was demurred to by some of the members.

St. Alban's and Milan.—There is a splendid chance of more distinction for the amateur architect who is said by the curious to have made himself noble by making the west front of St. Alban's Abbey ignoble. One of the most magnificent cathedrals in the world, the Duomo of Milan, is to be provided with a new façade. The prize-jury appointed by the conscript fathers of the old Lombard capital offer four premiums of considerable amount to the senders of the four best "projects of restoration." The competition is open to architects of all nations. A programme, with the conditions and a set of illustrative plates, at the cost of four francs, including postage, may be obtained by any applicant who will send his name and address to Signor Ulrico Huepli, bookseller to the King of Italy, Milan. Possibly the Italians might like to have their church of St. Ambrose, like our church of St. Alban's, subjected to the process wickedly known as "a Becketting."—*Pall Mall Gazette.*

Edward Alleyn's Almshouses. — The foundation-stone of Alleyn's Almshouses was, on Monday last, in the presence of a representative gathering of the inhabitants of Southwark, laid by Mr. F. Sandman, the College Warden, at Hamilton-road, Lower Norwood. The buildings provide accommodation for ten persons, each of whom will have a suite of rooms, consisting of living and bed room, kitchen with sink and dust-shoot, and water-closet and coal-cellar. The plans have been prepared by Mr. C. N. McIntyre North, of 15, Borough-street, S.E., and the buildings are being erected, under his superintendence, by Mr. Wm. Marriage, of Croydon.

The Atmosphere of Railway Carriages. A contemporary expresses a preference for death by "asphyxia," to death by cold from sitting in a draught. We are not quite sure that, even granting the somewhat shaky use of a technical term, this preference is well grounded; but, however that may be, there is no sort of reason for making a selection. It is not necessary to choose between closed and open windows in travelling by rail. Nothing could possibly be easier than to ventilate a carriage moving rapidly, by a very simple and obvious contrivance of air-chambers in the roof. There need be no down-draught, and certainly no difficulty exists in providing effectually for the egress of impure air and the introduction of pure air. The fact of movement overcomes the obstacle to ventilation which exists in the case of a fixed chamber.—*Lancet.*

New Railway Station at Norwich.—On Monday next, May 3rd, the Great Eastern Railway Company intend to open the new passenger station at Thorpe for traffic. This station is, next to Liverpool-street, the largest owned by the company. It has been constructed by Messrs. Youngs, contractors, Norwich. The building faces the river. The want of a new station has long been felt in Norwich. The old one, it is stated, is to be turned into a goods station.

Board Schools, Clyde Bank, Dumbartonshire, N.B.—The School Board of the parish of Old Kilpatrick recently decided to erect a new school at Clydebank, and invited architects to send in competitive plans. Fourteen architects responded, and sent in twenty designs. At a meeting of the Board held on the 23rd ult., these were carefully examined, and the design marked "Science" was adopted. This school will be one of the largest and most complete in the West of Scotland, and has accommodation, on the ground and first floors, for 1,500 scholars. The upper floor is specially designed and arranged for technical classes, and accommodates between 300 and 400 pupils. The class-rooms are large, lofty apartments, thoroughly well lighted and ventilated. The stairs are broad and easy, the steps all radiating to one common centre. There are masters' and pupil teachers' rooms on each floor, and convenient cloak-rooms for the children. The janitor's house is at the principal entrance. Messrs. A. Thomson & Turnbull, of Glasgow, are the architects, and they have been instructed to proceed with the work.

Utilisation of Gas Residuals.—At a recent meeting of the Stafford Town Council, the Gas Committee reported that they had instructed the manager to use the tar for heating the retorts in lieu of coke, and to purchase Mr. Simon's apparatus for manufacturing sulphate of ammonia and to erect the necessary buildings, the total cost not to exceed 600*l.* Alderman Dudley, in moving the adoption of the report, referred to the great fall that had taken place in the value of these residuals, which would amount at the present market price to no less than 1,400*l.* during the next twelve months. They had been selling the tar for five years at 38s. per ton, and the liquor at 19s. 5d. Now, in answer to their advertisement for tenders, the highest tender received had been 8s. for tar and 3s. 11d. for the liquor. If they had accepted this price, the amount they would realise would only be 430*l.* instead of 1,837*l.*, which they received last year. The committee, therefore, felt this was a matter of such serious importance that they deferred its consideration until they had ascertained if there was any better method of using the residuals than selling them at so low a price. After careful consideration of the whole matter the manager was now in a position to assure them that by adopting the manufacture of sulphate of ammonia he could realise a profit of about 450*l.* or 500*l.* a year over and above the present market price for the article. With regard to the tar, after careful study and testing they had ascertained that the tar would be worth 12s. 9d. a ton to them to burn, whereas they had only had an offer under pressure of 10s. a ton for it, and therefore they intended to burn it instead of selling it at that low price. The opinion of the committee was that no tar should be sold for less than 20s. a ton. They would not have much to dispose of after burning what they required, and he had no doubt if every gas-works adopted the same plan they would soon see the price go up to something like its old figure. The reported was adopted.

The Turners' Company.—This Company is offering, and has before offered, various prizes for the best examples of turning in wood and pottery, in special classes. Works in competition are to be sent in during the week ending October 23. Particulars may be obtained on application to Mr. Edgar Sydney, the honorary secretary to the Competition Committee, at 4, Hare-court, Temple.

Artists' Benevolent Fund.—Lord Chief Justice Coleridge will preside at the seventy-seventh anniversary dinner of the Artists' Benevolent Fund, on the 4th of June next, at the Freemasons' Tavern. The fund was founded in 1810, and incorporated by Royal Charter in 1827, and has given to widows and orphans of artists above 50,000*l.* since its foundation.

Lectures at the British Museum.—Miss J. E. Harrison intends to give a course of four lectures on the "Topography and Monuments of Modern Athens," in the Archaic Room of the British Museum, on Wednesday, May 12th, and the three following Wednesdays, at 11·45 a.m. precisely. Letters in regard to admission to the lectures can be addressed to Miss Wilson, No. 45, Colville-gardens, W.

Lincrusta-Walton Decoration.—Some important exhibits of this class of work are in preparation for various rooms or stands in the Edinburgh, the Liverpool, and the Indian and Colonial exhibitions.

Horwich New Railway Works.—Rapid progress is being made with these extensive works, in course of construction by the Lancashire and Yorkshire Railway Company to relieve the great pressure at their large establishments in Miles Platting. Two-thirds of the locomotive erecting shops have now been completed, and the building will be 1,520 ft. long by 115 ft. wide, and 30 ft. high, and will be furnished with a score of travelling-cranes, each of 30-ton lifting power. The contract for these has been let to Messrs. Etherington, of Manchester, at an estimated cost of 18,000*l.*, and the delivery of the cranes is expected to commence almost immediately. Mr. Meadows, of Stockport, is the contractor for the locomotive works. Half-a-dozen exceedingly large carriage-sheltering sheds, of corrugated iron, with semicircular roofs, have been erected by Messrs. Fish of Preston; and Mr. Riley, of Fleetwood, is engaged in the construction of a large range of offices for the Company. These will have a frontage to the highway of 350 ft. Since the Railway Company commenced to lay down their works here, the quiet little village has developed by leaps and bounds, rows upon rows of house and shop property springing up in all parts of the township. To meet the demand the Local Board are now about to largely increase their water supply; and they are also engaged in an extensive sewerage scheme, the cost of which is estimated at 10,000*l.* Mr. James Lomax, of Bolton, is the engineer for the latter, which will be carried out on his quiescent precipitation principle.

The Battersea Dust-yard.—We are glad to learn that there is at last a prospect of the scandal of the Battersea Dust-yard, against which we have so often inveighed, being satisfactorily and finally settled. Attempts have more than once been made to get rid of the nuisance, and the Southwark and Vauxhall Water Company in particular have striven to free their filter-beds from the danger involved in the too close proximity of the dust-yard to them. In the Water Company's Bill of this session is a clause authorising the compulsory purchase by them of the dust-yard site, with the object, of course, of abolishing forthwith the storage of refuse there. An agreement has, however, now been entered into between the Water Company and the London, Brighton, and South-Coast Railway Company, by which the railway company, being anxious not to part with the land, have undertaken to discontinue in perpetuity the use of the land for dust-sifting or any other noxious purpose, upon condition that the compulsory powers are withdrawn from the Bill. The Local Government Board, it is understood, have agreed conditionally to this arrangement, as it permanently removes the danger of which they complain.—*The Sanitary Record.*

The Corinth Canal.—The work of cutting a ship canal across the Isthmus of Corinth is making fair, though not very rapid, progress. At the present time there are upwards of 1,000 workmen employed on the excavations. The total quantity of earth which it was necessary to dig out was over twelve million cubic feet, and of this two and a half million cubic feet have already been removed. The depth of the canal will be 8 mètres, or 26 ft. The width at the surface of the water will be 22 mètres, or 72 ft., except at the entrance, where it will be from two and a half to three times the above width. Already the water of the adjacent seas penetrates to a distance of about 1,600 ft. into the land on each side, the depth being nearly 17 ft. At the rate at which the work is now being accomplished, the canal will be completed within five years from the present date.

Burma.—With a view to encourage engineering among the indigenous races in Burma, the Local Government have been pleased to offer a scholarship of Rs. 60 per mensem, tenable for five years, to youths of Burmese and Indo-Burmese origin. Applications from suitable candidates to be sent in to the Director of Public Instruction before the 31st of March, 1886. The successful candidate will be sent to the Engineering College at Calcutta, there to be trained in the profession, and ultimately to join the superior service of the D. P. W. in Burma.—*Indian Engineer.*

Indian and Colonial Exhibition. — We understand the Wilkes's Patent Metallic Paving Company have received instructions to pave the Indian Village at the Colonial and Indian Exhibition at South Kensington, the paving to be the same as that laid in the Old London Street at the Inventions Exhibition last year.

Gift of Pictures to the Wolverhampton Art Gallery.—At the last meeting of the Wolverhampton Town Council, the Mayor read a letter stating that Mr. P. Horsman, the donor of the art gallery, had authorised the inscription-plates on some valuable paintings he had placed in the art gallery to be altered from "Lent" to "Presented." The pictures, eleven in number, were estimated to be worth 2,500*l*. A vote of thanks to Mr. Horsman was carried, and it was referred to the General Purposes Committee to consider how Mr. Horsman's great liberality to the town could be best acknowledged.

More Exhibitions.—We shall soon witness the opening of three large exhibitions almost simultaneously, viz., the Colonial and Indian at South Kensington; the "Shipperies" at Liverpool; and the International Art and Industrial Exhibition at Edinburgh. In connexion with the "Shipperies" Exhibition at Liverpool, or, as it is officially styled, "The International Exhibition of Navigation, Travelling, Commerce, and Manufacture," it may be mentioned that Mr. Frank J. Leslie, one of the Honorary Secretaries, is engaged in delivering lectures in Liverpool, Chester, and other neighbouring towns, descriptive of the building and its chief exhibits. These lectures are illustrated by lantern views, and are free with the exception that a charge is made in some cases for front seats. This foretaste of the exhibition is intended, of course, to whet the appetite of possible visitors to the exhibition to such an extent as to induce them to go there to feast their eyes on its contents. But there are other exhibitions to come. We have received the prospectus of the Decorative Art Exhibition, which will be opened on July 12th at the Royal Aquarium, Westminster, and will remain open until the 31st of that month. There are to be twenty-two classes, each of which will comprise two sections, "trade and professional," and "amateur." We must also acknowledge the receipt of the preliminary prospectus of the "Newcastle-upon-Tyne Mining, Engineering, and Industrial Exhibition (International and Colonial)" which is to be held next year. It is promised that "a complete full-sized working model of a mine shall form a special feature" of the Exhibition.

PRICES CURRENT OF MATERIALS.

TIMBER.	£.	s.	d.	£.	s.	d.
Greenheart, B.G. ....ton	6	5	0	7	0	0
Teak, E.I. ....load	12	10	0	15	0	0
Sequoia, U.S. ....foot cube	0	2	4	0	2	8
Ash, Canada ....load	3	0	0	4	10	0
Birch "	3	0	0	4	10	0
Elm "	3	10	0	4	15	0
Fir, Dantsic, &c.	1	10	0	4	10	0
Oak "	3	0	0	5	0	0
Canada	5	10	0	6	10	0
Pine, Canada red	3	0	0	4	0	0
" yellow	3	0	0	5	0	0
Lath, Dantsic ....fathom	3	10	0	5	0	0
St. Petersburg	4	0	0	6	0	0
TIMBER (*continued*).						
Wainscot, Riga....log	2	15	0	4	10	0
" Odessa, crown	3	12	6	3	15	0
Deals, Finland, 2nd and 1st...std. 100	7	10	0	8	10	0
" 4th and 3rd	6	0	0	7	10	0
Riga	6	0	0	8	0	0
St. Petersburg, 1st yellow	9	0	0	14	0	0
" 2nd "	7	0	0	8	15	0
" white	7	0	0	10	0	0
Swedish	6	0	0	15	0	0
White Sea	7	0	0	17	10	0
Canada, Pine 1st	17	0	0	30	0	0
" 2nd	12	0	0	17	0	0
" 3rd, &c.	6	0	0	10	0	0
" Spruce 1st	8	0	0	11	0	0
" 3rd and 2nd	5	0	0	7	10	0
New Brunswick, &c.	5	0	0	7	0	0
Battens, all kinds	4	0	0	12	0	0
Flooring Boards, sq. 1 in.—Prepared, first	0	9	0	0	13	0
Second	0	7	6	0	8	6
Other qualities	0	5	0	0	7	0
Cedar, Cuba....foot	0	0	3½	0	0	4
Honduras, &c.	0	0	3	0	0	4
Australian	0	0	2½	0	0	3
Mahogany, Cuba	0	0	5	0	0	7½
St. Domingo, cargo average	0	0	5	0	0	7½
Mexican "	0	0	3½	0	0	4½
Tobasco "	0	0	4	0	0	6½
Honduras "	0	0	4½	0	0	6½
Maple, Bird's-eye	0	0	6	0	0	8
Rose, Rio ....ton	7	0	0	10	0	0
Bahia	6	0	0	10	0	0
Box, Turkey	5	0	0	18	0	0
Satin, St. Domingo ....foot	0	0	7	0	0	11
Porto Rico	0	0	8	0	1	3
Walnut, Italian	0	0	4	0	0	5
METALS.						
IRON—Pig in Scotland ....ton	0	0	0	0	0	0
Bar, Welsh, in London	4	10	0	4	17	6
" " in Wales	4	5	0	4	10	0
" Staffordshire, London	5	15	0	6	10	0
Sheets, single, in London	6	15	0	8	10	0
Hoops "	6	0	0	7	0	0
Nail-rods "	5	15	0	6	10	0
COPPER—						
British, cake and ingot ....ton	44	0	0	45	10	0
Best selected	46	0	0	46	10	0
Sheets, strong	53	0	0	0	0	0
" India	48	0	0	50	0	0
Australian	47	0	0	47	10	0
Chili, bars	41	15	0	42	2	6
YELLOW METAL....lb.	0	0	4½	0	0	4½
LEAD—Pig, Spanish	13	2	6	13	5	0
English, common brands	13	15	0	0	0	0
Sheet, English	14	5	0	14	10	0
SPELTER—						
Silesian, special ....ton	14	7	6	14	10	0
Ordinary brands	14	2	6	14	5	0
TIN—						
Banca ....ton	0	0	0	0	0	0
Billiton	0	0	0	0	0	0
Straits	93	10	0	94	0	0
Australian	93	17	6	94	7	6
English ingots	96	10	0	97	0	0
ZINC—						
English sheet ....ton	0	0	0	0	0	0
OILS.						
Linseed ....ton	19	10	0	20	0	0
Cocoanut, Cochin	28	10	0	29	0	0
Ceylon	24	15	0	0	0	0
Copra	0	0	0	0	0	0
Palm, Lagos	23	0	0	0	0	0
Palm-nut Kernel	0	0	0	0	0	0
Rapeseed, English pale	21	10	0	22	0	0
" brown	20	0	0	0	0	0
Cottonseed, refined	16	10	0	17	10	0
Tallow and Oleine	25	0	0	45	0	0
Lubricating, U.S.	6	0	0	10	0	0
" Refined	8	0	0	13	0	0
TURPENTINE—						
American, in casks....cwt.	1	9	6	1	10	3
TAR—Stockholm ....barrel	0	18	0	0	19	0
Archangel	0	10	6	0	11	6

CONTRACTS AND PUBLIC APPOINTMENTS.

Epitome of Advertisements in this Number.

CONTRACTS.

Nature of Work, or Materials.	By whom required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.	Page.
Water Works	Newmarkt Watrwks Co.	E. Easton & Co.	May 3rd	ii.
Making-up Carriageways and Footways	Chelsea Vestry	G. R. Strachan	May 4th	ii.
Rebuilding Boundary-Wall	Lambeth Guardians ...	Catt & Smith	May 5th	ii.
Wood Paving	Westminstr Bd. of Wks	G. R. W. Wheeler	do.	ii.
Cleaning and Painting Works	Midland Railway Co....	A. A. Langley	May 7th	ii.
Widening, &c., of Bridge	County of Stafford	R. Griffiths	May 8th	ii.
Cooking Apparatus	Swansea Union	*Official*	May 10th	ii.
Painting, Tarring, &c.	War Department	do.	May 11th	ii.
Gas Works	Holborn Union	H. Saxon Snell & Son	May 12th	xviii.
Ironmongery and Fittings for Schools	School Brd for London	*Official*	do.	ii.
Works, Repairs, and Materials	War Department	do.	do.	ii.
New Station at Stratford	Great Eastern Ry. Co.	do.	May 14th	ii.
Paving Improvements	Chepping Wycombe U. S. A.	J. Bowen	do.	ii.
Painting Lamp Columns and Brackets	Liverpool Corporation	*Official*	May 17th	xviii.
Works, Repairs, and Building Materials	War Department	do.	do.	ii.
Extension of Kitchen of Infirmary	Chelsea Guardians	do.	May 18th	xviii.
Paving Works	Vestry of St. George-the-Martyr, Southwark	do.	do.	ii.
Guernsey Granite, Flints, and Tar Paving	Chiswick Local Board	— Ramsden	May 19th	xviii.
Pipe Sewers and other Works		W. A. Murphy	Not stated	ii.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.	Page.
County Surveyorship, Ireland	Civil Service Com.	Not stated	Not stated	xvi.

TENDERS.

ACTON.—For the erection of Parish Hall at South Acton, W., for the Rev. A. Hunter Dunn, M.A. Mr. Edward Monson, jun., Grosvenor House, Acton, architect. Quantities supplied:—

F. Bray, Acton	£3,543 14 0
Penny & Co., Ealing	2,235 0 0
Steel Bros., Dalston	2,180 0 0
T. Nye, Ealing	2,130 0 0
S. Hunt, Chiswick	2,098 0 0
T. L. Green, Holborn	2,059 0 0
W. Woodward, Finsbury	2,050 0 0
T. Anthony, Brentford	2,022 0 0
W. Brown, Southall	1,987 0 0
Hann & Co., Windsor	1,979 0 0
G. Lifford, Shepherd's Bush	1,900 0 0
G. Hooper, Acton (accepted)	1,817 12 0

BREDE, Sussex.—For alterations and additions and part rebuilding the Rectory, Brede, Sussex. Mr. Lacy W. Ridge, architect, London:—

W. Comfort, Northiam	£1,297 13 0
R. Noakes, Brede	1,332 10 0
A. Neeves, Udimore	1,345 0 0
H. J. Rodda, St. Leonard's-on-Sea ..	1,350 0 0
J. Longley, Crawley	1,361 0 0
G. Harmer, Hurstmonceau	1,382 13 0
Eldridge L. Cruttenden, St. Leonard's-on-Sea	1,387 0 0
W. Colman, Stone Link, Brede	1,420 0 0
W. E. Warman, Hastings	1,450 0 0

BRENTFORD.—For making-up and sewering Springgrove. F. W. Lacey, A.M.I.C.E., surveyor, Brentford:—

Treherne & Co.	£270 0 0
Brunsden & Co.	216 0 0
William Parker	214 0 0
Nowell & Robson	215 0 0
Mowlem & Co. (accepted)	201 0 0

BRISTOL.—For the erection of the Parish Church, Ashton Gate, Bristol, from the finished level of the foundation work. Mr. John Bevan, architect, Unity-street, Bristol:—

	Section 2.	Section 3.	Total.
Brock & Bruce	£3,549	£1,804	£5,353
W. Cowlin & Son ...	3,386	1,765	5,151
H. A. Forse	3,320	1,720	5,040
E. Walters	3,000	1,575	4,575
A. J. Beaven	3,050	1,450	4,500
W. Church	2,983	1,498	4,481
Stephens & Bastow	2,949	1,449	4,398
C. A. Hayes	2,737	1,650	4,387
R. Wilkins & Sons...	2,890	1,494	4,384
J. Wilkins*	2,800	1,420	4,220

* Accepted.

CARDIFF.—For additional buildings at existing tramway depôt, for the Provincial Tramways Company. Messrs. Davis & Emanuel, architect, London:—

C. Fox	£2,653 0 0
Jones Bros.	2,180 0 0
C. Burton	2,140 0 0
Shepton & Son	2,065 0 0
F. S. Lock	1,767 0 0

[All of Cardiff.]

CARDIFF.—For new tramway depôt at Cathays, for the Provincial Tramway Company. Messrs. Davis & Emanuel, architects, London:—

C. Fox	£4,407 0 0
Jones Bros.	3,998 0 0
C. Burton	3,882 0 0
Shepton & Son	3,706 0 0
F. S. Lock	3,482 0 0

[All of Cardiff.]

CROYDON.—For finishing Tower House, Birdhurst Rise, Croydon. Mr. F. West, architect:—

F. R. Docking	£364 0 0
T. Bristy	333 0 0
S. Page	323 0 0
Goulder & Glasscock	318 10 0
M. Taylor	315 0 0
J. Horrocks	298 0 0
Bridger (accepted)	226 10 0

[All of Croydon.]

CROYDON.—For the erection of house at the junction of the Kidderminster and Stanton roads, Croydon. Mr. F. West, architect:—

W. Marriage, Croydon	£960 0 0
Smith & Bullard, Croydon	925 0 0
Smith & Sons, South Norwood	889 0 0
E. J. Saunders, Croydon	870 0 0
M. Taylor, Croydon	850 0 0
S. Page, Croydon	825 0 0

CROYDON.—For alterations and additions to premises, North End, Croydon, for Mr. D. H. Weston. Mr. F. West, architect, Coombe-road, Croydon:—

Smith & Sons, South Norwood	£280 0 0
W. Marriage, Croydon	270 0 0
S. Page, Croydon	256 0 0
M. Taylor, Croydon	247 0 0
F. R. Docking (accepted)	225 0 0

CROYDON.—For the erection of house in the Waddon-road, Croydon, for Mr. W. P. Wenham. Mr. R. W. Price, architect, Cedar-road, Sutton:—

Smith & Sons, South Norwood	£1,347 0 0
M. Taylor, Croydon	1,075 0 0
W. Marriage, Croydon	1,060 0 0
S. Page, Croydon	863 0 0
Smith & Bullard (accepted)	837 0 0

DUTTON (Cheshire).—For alterations and additions to the Union Farm at Dutton, near Preston Brook, Cheshire, for Mr. Algernon Charles Talbot. Messrs. C. E. Linaker & S. Davies, architects, Frodsham:—

Stelfox & Carter, Northwich	£799 0 0
Executors of late John Heave, Frodsham (accepted)	719 0 0

EALING.—For re-laying curb and channelling and making-up road and tar-paving footpaths called the Woodville-road, for the Ealing Local Board:—

Seward, Hanwell	£1,018	0	0
Bath & Blackmore, Clapham	1,015	0	0
Nowell & Robson, Kensington	982	0	0
Oldridge, Kew	955	0	0
Kellett, London	935	0	0
Pizzey, Hornsey	934	0	0
Constable & Co., Dulwich	846	0	0
Mowlem & Co., Westminster	841	13	4

FRODSHAM. — For the restoration of the tower of Frodsham Parish Church. Mr. Samuel Davies, architect, Frodsham:—

Thomas Davies, Frodsham*	£1,025	0	0

* Accepted.

FROME.—For erecting new boys' school and classrooms at Holy Trinity Church, Frome, for the Rev. W. E. Daniel, Vicar. Mr. W. G. Brown, architect, Frome:—

W. Norris, Frome	£720	0	0
Charles Barnes, Frome	690	0	0
F. P. Brown, Frome	676	0	0
Joseph Bird, Radstock	658	0	0
John Hodder, Frome	668	0	0
T. Parfitt (accepted)	622	0	0

FROME.—For erecting three new dwelling-houses and shops at St. Catherine-street, Frome, for Mr. Henry Beaven. Mr. W. G. Brown, architect, Frome:—

F. J. Seward, Frome (accepted)	£930	0	0

GOSFORTH (Northumberland).—For boundary walls, gateways, and retaining walls at the City Asylum, Gosforth, Newcastle. Mr. Arthur B. Plummer, architect:—

Thomas Turner, Wallsend (accepted)	£920	0	0

HOLBORN.—For the erection of printing warehouse and premises, Great Saffron Hill, E.C., for Mr. J. Ogden. Mr. W. S. Wilson, architect. Quantities by Mr. J. W. Stevens, New Bridge-street:—

Wagstaff & Son	£4,967	0	0
Mowlem & Co.	4,569	0	0
Nightingale	4,465	0	0
Hoare & Son	4,430	0	0
Smith & Son, Norwood	4,397	0	0
T. L. Green	4,365	0	0
Pack Bros., Brixton	4,331	0	0
Ashby & Horner	4,290	0	0
Prestige & Co.	4,287	0	0
Holliday & Greenwood, Loughborough	4,233	0	0
J. Woodward	4,098	0	0

ISLINGTON.—For alterations and additions at the Duke of Cambridge, St. Peter's-street, Islington, for Mr. J. Murray. Messrs. Alexander & Gibson, architects, Great James-street, Bedford-row:—

H. R. Banks	£949	0	0
J. Anley	945	0	0
Marr (too late)	887	0	0
Batchelder	887	0	0
Jackson & Todd	843	0	0
J. Beale (accepted)	830	0	0

Pewtering.

Watts	£72	15	0
Saunders	71	10	0
H. Warne	70	0	0
Heath	69	0	0
Farmiloe	68	18	6

LONDON. — For conservatory at No. 7, Upper Wimpole-street, for Mr. Joseph Jennens. Messrs. Arundell & Tarte, architects:—

G. H. & A. Bywaters, London	£155	0	0
F. Bradford, London	147	15	0
Johnson & Manners	133	0	0
Clarke & Mannooch, London*	124	19	0

* Recommended for acceptance.

LONDON.—For alterations and additions to Nos. 163 and 165, Hampstead-road, for Mr. T. Marks. Mr. Banister Fletcher, M.P., architect:—

H. J. Williams	£1,063	0	0
E. Cock	1,040	0	0
Neave	1,015	0	0
Fanthorpe	871	0	0
Buckland	868	0	0
Jackson & Todd	849	0	0
J. O. Richardson (accepted)	810	0	0

LONG SUTTON (Lincolnshire).—For the re-erection of the White Hart Inn. Mr. Joseph Sawyer, Chancery-lane, architect. Quantities by the architect:—

J. & H. Goodman, Long Sutton	£775	10	0
Carbutt & Ream, Long Sutton	757	10	0
Bardell Bros., King's Lynn	744	0	0
W. Emerson, Stamford	716	0	0
Girling Bros., Wisbeach	693	0	0
Messrs. Bateman, Sutton Bridge	657	16	2
W. Greenfield, Boston	654	11	9
William Jarvis, King's Lynn	650	0	0
S. Bradley, Sutton Bridge	645	0	0
Thomas Gilder, Holbeach*	640	0	0
Henry Hicks, Peterborough	639	3	0

[Architect's estimate..... £650.]

* Accepted.

LONG SUTTON (Lincolnshire).—For the erection of shops and houses in the Market Place, for the trustees of the late Mr. Hainsworth. Mr. Joseph Sawyer, Chancery-lane, architect. Quantities supplied:—

Bardell Bros., King's Lynn	£2,471	0	0
W. Emerson, Stamford	2,280	0	0
S. Sherwin, Boston	2,217	0	0
Girling Bros., Wisbeach	2,196	15	0
Henry Hicks, Peterborough	2,050	0	0
Messrs. Bateman, Sutton Bridge	2,040	16	4
W. Greenfield, Boston (accepted)	1,954	8	4

[Architect's estimate..... £2,000.]

NEWCASTLE-ON-TYNE.—For additions to Christ Church Schools, Newcastle. Mr. Arthur B. Plummer, architect, Newcastle:—

Walter Boston, Newcastle (accepted)	£400	0	0

RODDEN.—For alterations and additions at Easthill Farm, Rodden, for Mr. T. F. Parkinson. Mr. W. G. Brown, architect, Frome:—

F. J. Seward, Frome	£304	0	0
S. Chislett, Frome	287	0	0
F. P. Brown, Frome	267	0	0

TEDDINGTON.—For foundations for new church at Teddington, Middlesex. Mr. W. Niven, architect, Dean's Yard, Westminster. Quantities not supplied:—

J. Shillitoe & Son, Bury St. Edmunds	£1,866	0	0
F. Collinson, Teddington	1,500	0	0
T. H. Adamson & Sons, Putney*	1,385	0	0
Dove Bros., Islington (exclusive of pumping)	1,325	0	0

* Accepted.

SPECIAL NOTICE.—Lists of Tenders frequently reach us too late for insertion. They should be delivered at our office, 46, Catherine-street, W.C., *not later than Four p.m.* on THURSDAYS.

PUBLISHER'S NOTICES.

Registered Telegraphic Address, "THE BUILDER, LONDON."

CHARGES FOR ADVERTISEMENTS.

SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS, TRADE, AND GENERAL ADVERTISEMENTS.

Six lines (about fifty words) or under ..... 4s. 6d.
Each additional line (about ten words) ..... 0s. 6d.

Terms for Series of Trade Advertisements, also for special Advertisements on front page, Competitions, Contracts, Sales by Auction, &c. may be obtained on application to the Publisher.

SITUATIONS WANTED.

FOUR Lines (about THIRTY words) or under ..... 2s. 6d.
Each additional line (about ten words) ..... 0s. 6d.

PREPAYMENT IS ABSOLUTELY NECESSARY.

*** Stamps *must* not be sent, but all small sums should be remitted by Cash in Registered Letter or by Money Order, payable at the Post-office, Covent-garden, W.C. to

DOUGLAS FOURDRINIER, Publisher,
Addressed to No. 46, Catherine-street, W.C.

Advertisements for the current week's issue must reach the Office before THREE o'clock p.m. on THURSDAY.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, &c. left at the Office in reply to Advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

SPECIAL.—ALTERATIONS in STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE same, must reach the Office before TEN o'clock on WEDNESDAY mornings.

PERSONS Advertising in "The Builder," may have *Replies addressed to the Office,* 46, Catherine-street, Covent Garden, W.C. *free of charge.* Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage.

TERMS OF SUBSCRIPTION.

"THE BUILDER" is supplied DIRECT from the Office to residents in any part of the United Kingdom at the rate of 19s. per annum PREPAID. To all parts of Europe, America, Australia, and New Zealand, 26s. per annum. To India, China, Ceylon, &c. 30s. per annum. Remittances payable to DOUGLAS FOURDRINIER, Publisher, No. 46, Catherine-street, W.C.

TO CORRESPONDENTS.

Registered Telegraphic Address, "THE BUILDER, LONDON."

J. W. V.—T. E. P.—M. C. D. & Son.—R. P.—E. G. & P.—J. L. C. S. (hardly suitable for our columns).—M. H. J. (we are not in the habit of giving texts of Bills until they have actually been presented to Parliament).—R. A. B. (not forgotten, but we have so much archæological work on hand that it must take time to find room for it all).

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender, not necessarily for publication.

We are compelled to decline pointing out books and giving addresses.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

We cannot undertake to return rejected communications.

Letters or communications (beyond mere news-items) which have been duplicated for other journals, are NOT DESIRED.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; all communications relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

Best Bath Stone.
WESTWOOD GROUND,
Box Ground, Combe Down,
Corsham Down,
And Farleigh Down,
RANDELL, SAUNDERS, & CO., Limited,
Corsham, Wilts. [ADVT.

Bath Stone.
BEST QUALITY OF ALL KINDS.
PICTOR & SONS,
Box, WILTS. [ADVT.

Doulting Freestone and Ham Hill Stone of best quality, in blocks, or prepared ready for fixing. An inspection of the Doulting Quarries is respectfully solicited; and Architects and others are CAUTIONED against inferior stone. Prices, delivered to any part of the United Kingdom, given on application to CHARLES TRASK & SONS, Norton-sub-Hamdon, Ilminster, Somerset.—Agent, Mr. E. WILLIAMS, No. 16, Craven-street, Strand, W.C. [ADVT.

Doulting Free Stone
HAM HILL STONE,
BLUE LIAS LIME
(Ground or Lump),
For prices, &c., address S. & J. STAPLE, Quarry Owners, Stone and Lime Merchants, Stoke-under-Ham, Ilminster. [ADVT.

Asphalte.—The Seyssel and Metallic Lava Asphalte Company (Mr. H. Glenn), Office, 38, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds, and milk-rooms, granaries, tun-rooms, and terraces. [ADVT.

Asphalte.
Seyssel, Patent Metallic Lava, and White Asphaltes.
M. STODART & CO.
Office:
No. 90, Cannon-street, E.C. [ADVT.

MICHELMORE & REAP,
Manufacturers of
CHARLES COLLINGE'S PATENT.
COLLINGE'S PATENT HINGES, LEVER, SCREW, & BARREL BOLTS,
Self-Acting "FALL DOWN" GATE STOPS,
and IMPROVED GATE FITTINGS of every Description
36A, BOROUGH ROAD, LONDON, S.E.
DISCOUNT TO BUILDERS.

BRABY'S PATENT GLAZING.

GLASS SET FREE,
ALLOWING EXPANSION AND CONTRACTION, AND PRECLUDING BREAKAGE.
ABSOLUTELY WATERTIGHT. PAINTING AND PUTTY SUPERSEDED.
OVER THREE MILLION FEET FIXED.
DRAWINGS AND PRICES ON APPLICATION.
— MODELS AND SECTIONS ON VIEW. —

LONDON:	LIVERPOOL:	GLASGOW:
356 to 362, EUSTON ROAD.	*6 and 8, HATTON GARDEN.*	*335, ARGYLE STREET.*